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GLEANINGS IN BEE CULTURE.

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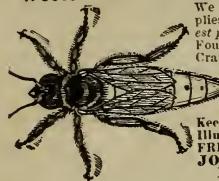
30 COLONIES DEPARTMENT OF AGRICULTURE

**ITALIAN AND HYBRID BEES
FOR SALE CHEAP.**

Bees are in 1½-story L. and Simplicity hives; also empty Hives and Combs. Extractors, Section-racks, Wide frames, 1500 4¼ x 1¼ Sections, etc. Write for particulars to **J. A. BUCKLEW,**
6tfdb **Clarks, Coshocton Co., Ohio.**

Western BEE-KEEPERS' Supply House.

We manufacture Bee-Keepers' supplies of all kinds, best quality at lowest prices. Hives, Sections, Comb Foundation, Extractors, Smokers, Crates, Honey Buckets Vails, Feeders, Bee-Literature, etc., etc. Imported Italian Queens, Italian Queen Bees, 1lb. Nucleus or Colony, "Bee-Keepers' Guide," Memoranda, and Illustrated "Catalogue" of 48 pages FREE to Bee-Keepers. Address **JOSEPH N. SEEWANDER,** DES MOINES, IOWA.



RUBBER FOR MENDING RUBBER BOOTS, RUBBER SHOES, and all kinds of **CEMENT**, rubber goods. An article worth its weight in gold, for the saving of health, annoyance, and trouble. Printed directions for use accompany each bottle. Ten cents per bottle; ten bottles, 85¢; 100, \$8.00. **A. I. ROOT, MEDINA, OHIO.**

ITALIAN AND SYRIAN QUEENS,

Before June 15, tested, \$3.00 each; untested, \$1.00 each. Later tested, \$2.00 each; untested, single queen, \$1.00; six for \$5.00; twelve or more, 75¢ each. Untested queens warranted purely mated. **I. R. GOOD, Nappanee, Elkhart Co., Ind.**

BEES IN IOWA. — SEE FOSTER'S — ADVERTISEMENT.

PURE ITALIAN BEES.

Full colonies, nuclei, bees by the pound, and Queens a specialty. Also, Simplicity Hives, Frames, Sections, Comb Foundation, and supplies generally. Send for my circular and price list. You will save money by so doing.

C. M. DIXON,

4-11-db

PARRISH, FRANKLIN CO., ILL.

ALL PROGRESSIVE BEE-KEEPERS

Suffer for my price list of Bee-Keepers' Supplies of all kinds. Send for price list and be convinced.

J. W. BITTENBENDER,

4-9db

KNOXVILLE, MARION CO., IOWA.

ITALIAN BEES AND QUEENS,

Full Colonies, NUCLEI, AND QUEENS, CHEAP.

C. C. VAUGHN, 4tfdb **COLUMBIA, TENN.**

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3tfdb

Bee-Hives, Honey-Boxes, Sections.

LARGEST BEE-HIVE FACTORY IN THE WORLD.

CAPACITY, 1 CARLOAD OF GOODS PER DAY

Best of goods at lowest prices. Write for Price List. 1tfdb. **G. B. LEWIS & CO.,** Watertown, Wis.

BEES & PLANTS.

20 stands of Italians at \$5.00; and 20 stands of hybrids at \$4.00 per stand, all in Simplicity hives of Root's pattern. Also pure Gregg, Cuthbert, and Turner raspberry-plants for sale at \$1.00 per 100, or \$8.00 per 1000. Address **A. F. ROBINSON, Marysville, O.**

BEE-HIVES,

One-Piece Sections, Section Cases, Frames, &c.,

OF SUPERIOR WORKMANSHIP, FROM

SMITH & GOODELL,

Manufacturers of and Dealers in

APIARIAN SUPPLIES,

ROCK FALLS, WHITESIDE CO., ILL.

3tfdb *Send for Price List.*

RUBBER PRINTING-STAMPS

For bee-men; stamps of all kinds: send for catalogue and sample cuts printed on sections.

7d **G. W. BERCAW, Berwick, Ohio.**

HORN PAYS EXPRESS CHARGES

SEE ADVERTISEMENT.

15 PLYMOUTH-ROCK EGGS by express for \$1.00. 579d **S. A. DYKE, Pomeroy, Ohio.**



The BUYERS' GUIDE is issued March and Sept., each year. 280 pages, 8½ x 11½ inches, with over 3,500 illustrations — a whole Picture Gallery. GIVES Wholesale Prices

direct to consumers on all goods for personal or family use. Tells how to order, and gives exact cost of everything you use, eat, drink, wear, or have fun with. These INVALUABLE BOOKS contain information gleaned from the markets of the world. We will mail a copy FREE to any address upon receipt of 10 cts. to defray expense of mailing. Let us hear from you. Respectfully,

MONTGOMERY WARD & CO.
227 & 229 Wabash Avenue, Chicago, Ill.

STRAWBERRY PLANTS.

I will sell, from now until May 1st, in lots not less than 3000, packed and delivered at express office.

Pure Crescent \$2.00 per 1000

" Sucker State 3.00 "

4-5-6-7d **C. F. TYSON, Centralia, Marion Co., Ill.**

GOOD NEWS FOR DIXIE!

SIMPPLICITY HIVES,

Sections, Extractors, Smokers, Separators, &c., of Root's Manufacture, Shipped from here at **ROOT'S PRICES.**

Also S. hives of Southern yellow pine, and Bee-Keepers' Supplies in general. *Price List Free.*

J. M. JENKINS, WETUMPKA, ALABAMA. 3-21db

50 COLONIES BEES FOR SALE.

I have 50 stands of bees for sale, hybrids and blacks, and in the Mitchell hive, 15 frames in hive, well painted, and metal rabbits. I live on the Arkansas Midland R. R., and can ship by R. R. or water via Helena. I will take \$4.50 per stand, delivered on board train, and delivered by latter part of March.

PETER METZ.

3-8db **Poplar Grove, Phillips Co., Ark.**

Look! Honey-Comb Foundation! Look!

FRINEDS, if you want any Foundation it will pay you to purchase of us, as we have the very latest improved mills; heavy, 45 cts. per pound; very thin, for comb honey, 10 cts. more per pound; 10% discount on all orders received before April 1st. Send for free samples. Address

C. W. PHELPS & CO.,
TIOGA CENTRE, TIOGA CO., N. Y.

4-5 6db

QUEENS. 1886. QUEENS.

Rearred from Imported Mothers. Two, three, and four frame nuclei. Safe arrival and satisfaction guaranteed. Send for price list. Address
5-11db FRANK A. EATON, BLUFFTON, OHIO.



Orders filled the day they are received, except for bees and queens. 4tfdb

\$350. ATTENTION. \$350. APRIARY FOR SALE.

50 swarms of splendid bees in 2-story Langstroth hives, comb-honey outfit complete, in location where bees never freeze or starve. Will pay for themselves the first year. Combs all built on fdn., and wired. A splendid chance for live man to gain a livelihood in sunny California. Reason for selling, must have money. Address 678d

DAVIS BROS., Box 166., Selma, Cal.

Reference, Judge Fowler, Selma, Cal. This is an irrigated district, and a complete failure is unknown. This climate is splendid for those suffering with lung complaints. Inclose stamp. Also a small farm for sale.

PURE * ITALIANS * EXCLUSIVELY.

→ STOP, * READ, * AND * ORDER. →

Having determined to devote my time and attention exclusively to the production of pure Italian bees and queens, during the season of 1886, I offer, in order to reduce stock, 50 Choice Colonies of Pure Italians in 10 Langstroth frames, guaranteed to contain at least 4 full frames of brood and 4 lbs. of bees in new chaff hive, at \$10.00 each. I append my prices for the season.

My terms are cash with the order. First orders will be filled first. I will refund money at any time a customer may become dissatisfied with waiting.

My methods: One kind, and the best of that kind. Nothing except tested queens sold at any price. I will send one-year-old queens until stock is exhausted, and then this season's hatch. I will commence to send, about May 1st.

| | |
|--------------------------------|--------|
| 1 tested queen..... | \$1.00 |
| 1 pound of bees | 1.00 |
| 1 frame of brood and bees..... | 1.00 |

In lots of 5, five per cent discount; in lots of 10, ten per cent discount. In lots of 10 or more nuclei or pounds of bees, I will pay express charges for the first 1000 miles. Now remember, I guarantee safe arrival and absolute satisfaction in all cases. Sample of live workers free by mail. Capacity, 25 queens per day after May 1st.

I append a few from hundreds of recommendations from last season's customers.

Sodus Point, N. Y.

I am very much pleased with the tested queen I got from you last summer. JAY S. SEELEY.

Port Dover, Ontario, Can.

I believe I can make arrangements with you for queens next spring, as what I have got from you please me very well. R. M. TAYLOR.

LATER.—I will give you my trade for queens for 1886.

R. M. T.

Mill Point, N. Y.

Queen arrived in fine condition, and I am well pleased with both queen and bees. PETER KLINE.

Penetanguishene, Ontario, Canada.

Queen received all right, and alive. She is a noble-looking queen, and pleases me better than any I have yet received. H. T. LEACH.

THOMAS HORN,
BOX 691, SHERBURNE, CHENANGO CO., N. Y.

6tfdb

BURPEE'S FARM ANNUAL FOR 1886

Will be sent **FREE** to all who write for it. It is a **Handsome Book of 128 Pages**, with hundreds of new illustrations, two **Colored Plates**, and tells all about the **Best Garden, Farm and Flower Bred Stock** and **Fancy Poultry**. It is the only complete catalogue of the kind published, and describes **RARE NOVELTIES** in **VEGETABLES** and **FLOWERS**, of real value, which can not be obtained elsewhere. Send address on a postal to

W. ATLEE BURPEE & CO., PHILADELPHIA, PA.

STANLEY'S AUTOMATIC HONEY-EXTRACTOR.

The only self-reversing Honey-Extractor known. Will do double the amount of work of any other extractor. Send for new circular, just out April 1st. Californians, send to Baker & Barnard, San Buenaventura, Ventura Co., Cal. Canadians, send to E. L. Good & Co., Brantford, Ont., Can. All others, address G. W. STANLEY, 7d Wyoming, N. Y.

ITALIAN QUEENS

From imported and best tested queens, \$1.00 each. Tested queens, \$1.75. Raised in full colonies. Bees, per lb., 90 cts.; 6 lbs. for \$5.00, in wire-cloth cages; 80 colonies to draw from. Safe arrival guaranteed. Purc-bred Plymouth Rock, White and Brown Leghorn eggs, 13 for \$1.00. Spider-plant seeds by mail, \$1.30 per lb.; 15 cts. per oz.

W. A. SANDERS, Oak Bower, Hart Co., Ga.

60 Colonies of Bees For Sale.

For particulars, call upon or address
7tdb A. L. EDWARDS, Skaneateles, N. Y.

FOR SALE.—40 colonies of my improved strain of pure Italian bees in two-story chaff hives, @ \$7.00; in single-walled hives, 1½ story @ \$6.50; 50 two-story chaff hives, including frames and crates, @ \$1.50; 50 single-walled hives, frames and crate, @ .90. Hives have tin roof. 1 honey-ext. for L. frame, \$3.00. A wax-ext., \$1.00. Must be sold immediately.

7tdb
GEO. F. WILLIAMS, NEW PHILADELPHIA, O.

EGGS. * EGGS.

Friends, if you wish for eggs of the best purchased poultry, please send your order for either of the following varieties:

Langshans, Wyandottes, Houdans, Rose-Comb White Leghorns, Rose-Comb Brown Leghorns, Single-Comb Brown Leghorns.

But one variety is kept on a farm. Our stock is No. 1, and we are confident we can please you. We guarantee safe arrival of every thing that we ship. Descriptive circular free. Address

J. C. BOWMAN & CO.,
78d NORTH LIMA, MAHONING CO., OHIO.



Having sold the 100 colonies of **Bees** offered in the March Ncs. of this journal, I am now booking orders only for

NUCLEUS COLONIES AND QUEENS. ALSO BEE-KEEPERS' SUPPLIES.

Send for 1886 price list. Address
7tdb WM. W. CARY,
Successor to Wm. W. Cary & Son. COLERAINE, MASS.

BEES IN IOWA. SEE FOSTER'S ADVERTISEMENT.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column.

FOR SALE.—One hundred Simplicity bee-hives, \$1.50 each. These hives are the Simplicity, except that they have a permanent bottom-board, and the cover is deep enough to allow the use of one case of 1-lb. sections, making them 1½-story hives. Nailed, and painted two coats, tin roof, 10 frames, all ready for the bees. Will be put on board here for \$1.50 each. Address
7d
J. S. STARN, Freesburg, Highland Co., O.

FOR SALE.—15 hives of bees in first-class order, by A. I. Root, each having 10 brood-combs, *all worker comb*; 6 single-story and 9 two-story, each having 7 broad frames with tin separators and 56 sections. Also one Novice extractor. Will sell very cheap.

Address REV. R. MALLALIEN,
7d Green Village, Franklin Co., Pa.

SPECIAL BY TELEPHONE.

“Hello! Hello!”

“Well, what do you want?” “Simply to inform you that, if you want to purchase the finest Italian and Albino **Bees** and **Queens** in the world, try **F. Boomhower**, of Gallupville, N. Y. He has them at extremely low prices. Send for his circular. All right. Good-bye.”

7-9d

Y&. WYANDOTTE FOWLS, ITALIAN BEES, QUEENS, AND SUPPLIES. Send for Price List.
W. H. OSBORNE, CHARDON, OHIO.
5-7-9db



NOTICE THE LOW PRICES ON Bees, Brood, Queens, Plants, Etc.,

IN M7 NEW CIRCULAR. PLEASE WRITE FOR ONE.

5-7-9db
C. WECKESSER,
Marshallville, Wayne Co., Ohio.

QUICK SALES, SMALL PROFITS.

The 3d edition of “Handy Book, or Queen-Rearing,” 200 pages, 100 illustrations, bound in cloth, by mail..... \$1 10
Book, and sample of *latest* improved drone and queen trap, by mail..... 1 50
Book and tested queen, any race (from June 1 to Oct. 1) by mail..... 2 00
Book and warranted queen, any race (from June 1 to Oct. 1) by mail..... 1 75
Money-order office, Salem, Mass. Postage-stamps will do for odd change. Send for circular.
7tdb
HENRY ALLEY, Wenham, Mass.

BEES. Full Colonies, Hybrids and Italians, for sale, in Simplicity and Adair hives. I guarantee safe arrival by express. My bees have wintered as well as usual on the summer stands. Write how many you want, and for prices. H. M. MOYER, 7-9db
Hill Church, Berks Co., Pa.

FOR SALE.—25 Colonies of bees in S. hives, nucleus colonies in shipping-boxes, tested and untested Italian queens. 7d.
N. ADAMS, Sorrento, Orange Co., Fla.

101 Designs for brackets, etc., for 10c and 5 names of
fret-sawyers. J. L. Hyde, Pomfret Landing, Ct.

SECTIONS

First quality white basswood sections, 4 pieces, dovetailed, $4\frac{1}{2} \times 4\frac{1}{2}$. \$4.00 per 1000. Cash with the order, and satisfaction guaranteed. Any size of section made to order, dovetailed or to nail, at equally low prices.

7d
F. GRANGER & SON, HARFORD MILLS, CORTLAND CO., N. Y.

Eggs for hatching I have got, From Pekin ducks and Wyandottes; If you will send me dollars two, Thirteen fresh eggs I'll send to you. “Rabbits as usual.” A. A. FRAEDENBURG,
7-8d Port Washington, O.

125 STOCKS OF BEES FOR SALE.

Mostly Italians. These bees must be sold, and will be sold cheap. All in Quinby frames. Sold with or without hives. Send for prices of Italians, hybrids, and blacks. Address

7-10db
WM. E. CLARK,
Oriskany, Oneida Co., N. Y.

50 Swarms of Bees For Sale

In 8-frame L. hives. Hives are new. Pure Italians from A. I. Root's best imported stock, \$5.00 each; 20 hybrid swarms, \$4.50 each; 1 fine imported queen, \$5.00; 5 tested queens, \$1.50 each. Safe arrival guaranteed. First ordered, first served.

7d
J. R. REED,
MILFORD, JEFF. CO., WIS.

JOB LOT OF WIRE CLOTH AT GREATLY REDUCED PRICES.

SECOND QUALITY WIRE CLOTH AT 1 1/2 CTS. PER SQUARE FT.

(SOME OF THE USES TO WHICH THIS WIRE CLOTH CAN BE APPLIED.)
This wire cloth is second quality. It will answer nicely for covering doors and windows, to keep out flies; for covering bee-hives and boxes; for shipping bees; making sieves for sifting seeds, etc.

Number of Square Feet contained in each Roll Respectively.

| Inches Wide. | No. of Rolls. | Number of Square Feet. |
|--------------|---------------|--|
| 24 | 3 | 2 rolls of 200 s. f. |
| 26 | 71 | 22 rolls of 217, 38 of 216, 2 of 195, 2 of 215, 1 of 210 s. f. |
| 31 | 19 | 9 rolls of 233, and 2 of 234, s. f. |
| 34 | 7 | 5 rolls of 281 s. f. |
| 38 | 37 | 28 rolls of 316, 2 of 285, 2 of 317, 1 each of 190, 632, and 215 s. f. |
| 42 | 1 | 1 roll of 245 s. f. |
| 42 | 1 | 1 roll of 316, 1 of 318 s. f. |
| 46 | 1 | 1 roll of 152 s. f. |
| 48 | 4 | 4 rolls of 400 s. f. |

FIRST QUALITY WIRE CLOTH AT 1 1/2 CTS. PER SQUARE FT.

The following is first quality, and is worth 1 1/2 cts. per square foot. It can be used for any purpose for which wire cloth is ordinarily used; and even at 1 1/2 cts. per sq. ft. it is far below the prices usually charged at hardware and furnishing stores, as you will ascertain by making inquiry. We were able to secure this very low price by buying a quantity of over one thousand dollars' worth.

| Inches Wide. | Number of Rolls. | Number of Square Feet. |
|--------------|------------------|---|
| 22 | 1 | 1 roll 143 s. f. |
| 24 | 43 | rolls of 200 sq. ft. each; 1 each of 120, 168, 190, 140, 150, 140 sq. ft. |
| 26 | 57 | rolls of 216 sq. ft. each; 1 each of 199, 195, 201, 200, 227, 204 sq. ft. |
| 28 | 73 | rolls of 233, 11 of 224, 3 of 219, 8 of 222, sq. ft.; 1 each of 93, 245, 257, sq. ft. |
| 30 | 36 | rolls of 250 sq. ft.; 1 each of 235, 275, 249, 220, 227, 237, sq. ft. |
| 32 | 13 | of 266, 7 of 256, 2 of 253 sq. ft.; 1 each of 250, 275 sq. ft. |
| 34 | 33 | rolls of 283 sq. ft. each. |
| 36 | 22 | rolls of 300 sq. ft. each; 1 each of 288, 279, and 285 square ft. |
| 38 | 1 | roll each of 300 and 316 sq. ft. |
| 40 | 1 | roll of 233 square feet. |
| 42 | 1 | roll of 350 square feet. |
| 46 | 1 | roll of 192 square feet. |

A. I. ROOT, Medina, Ohio.

JOB LOT OF POULTRY-NETTING,

At 1 ct. per sq. foot; 5 per cent off for two or more pieces; 10 per cent off for 10 or more pieces; 1 1/2 cts. per sq. ft. when we have to cut it. Besides this job lot we keep in stock the regular 4-foot poultry-netting, in rolls of 150 lineal feet at same price as above. These figures give the number of sq. feet for each roll; and by dividing by the number of feet wide you can determine the length of each piece.

| | |
|----|---|
| 12 | 1 piece each of 23, 50, 51, 100 and 94 sq. ft. |
| 18 | 1 " " 20, 27, 54, 189, 147, and 203 sq. ft. |
| 24 | 1 " " 14, 18, 24, 28, 32, 38, 40, 42, 46, 48, 52, 56, 68, 70, 84, 96, 104, 130, 160 176, 180, and 228 sq. ft. |
| 30 | 1 piece each of 15, 25, 30, 37, 65, 110, 180, 194, 258, and 265 sq. ft. |
| 36 | 1 " " 18, 18, 33, 33, 38, 39, 51, 51, 60, 63, 69, 69, 84, 87, 102, 111, 162, 180, 252, 258, 345, 375, 387, 390, and 414 sq. ft. |
| 42 | 1 piece each of 21, 25, 182, 200, 210, 350 and 350 sq. ft. |
| 48 | 1 " " 24, 28, 32, 44, 60, 76, 80, 100, 100, 108, 116, 120, 124, 140, and 406 sq. ft. |
| 60 | 1 piece each of 45, 115, 125, and 180 sq. ft. |
| 72 | 1 " " 24, 36, 42, 51, 51, 66, 72, 72, 138, 150, 186, 300, 450, and 552 sq. ft. |

We know of nothing nicer or better for a trellis for creeping vines, than the above netting. The 12 to 24 inch is just the thing to train up green peas, fastening the netting to stakes by means of staples. If the stakes are set in substantially, one each 12 or 15 feet will answer. When the peas are stripped off the stakes, netting all can be rolled up and laid away until another season.

A. I. ROOT, MEDINA, OHIO.

Pure ITALIAN BEES and QUEENS FOR SALE.

QUEENS BRED FROM IMPORTED STOCK.

Untested queen, just commencing to lay, \$1.00

Furnished by the 10th of May.

Tested, \$2.00. Select tested, \$2.50. Furnished by the 16th of May.

One-half pound bees, 90c. Furnished after the 1st of April. Cage included.

Two-frame nucleus, consisting of 1/2 lb. of bees, 90c, two frames partly filled with brood, 90c, and one nucleus hive, 49c. Total \$2.20; guaranteed.

All bees, queens, and nuclei are to be safely delivered at your nearest express or postoffice, you paying all express charges. Order early. First ordered, first served.

C. F. UHL,
Millersburg, Holmes Co., O.

→SOUTHERN HEADQUARTERS← FOR EARLY QUEENS,

Nuclei, and full colonies. The manufacture of hives, sections, frames, feeders, foundation, etc., a specialty. Superior work and best material at "live" prices. Steam factory, fully equipped, with the latest and most approved machinery. Send for my illustrated catalogue. Address

5-7d

J. P. H. BROWN, Augusta, Ga.

BINGHAM SMOKERS LAST AND PLEASE.

BORODINO, N. Y., Aug. 15, 1882.
All summer long it has been "which and f'other" with me and the Cyprian colony of bees I have—but at last I am *boss*; Bingham's Conqueror Smoker did it. If you want lots of smoke just at the right time, get a Conqueror Smoker of Bingham.

G. M. Doolittle.

INDEPENDENCE, CAL., Jan. 2, 1886.

Messrs. Bingham & Hetherington:—Dear Sirs:—

The "Doctor" came to hand last night in good order. "It is a Daisy." Won't the little pets wink their eyes when they get some of his medicine? I have one of your "Large" smokers, which has been in use six years.

Respectfully yours, WM. MUTH-RASMUSSEN.

Bingham Smokers and Knives sent per mail, postpaid, at 65 cents, to \$2.00. Send for free circular to

5-7d **BINGHAM & HETHERINGTON, ABRONIA, MICH.**

—BE SURE—

To send a postal card for my catalogue of **Albino** and **Italian Queen-Bees**, and see what my customers say about them, before purchasing elsewhere. Address

D. A. PIKE,

5-7d SMITHSBURG, WASH. CO., MD.

BASSWOOD-TREES.

Basswood-trees, 1 to 3 feet high, per hundred, \$1.50 Hard Maple " 3 to 5 " " " 1.50

Black-raspberry plants, 7 different kinds, per hundred, \$1.00; per thousand..... 6.50

Address H. WIRTH, Borodino,

3-5-7d Onondaga Co., N. Y.

Italian Bees, Nuclei, and Queens,

From Imported and selected mothers. Send for Sixth annual Circular.

SIMON P. RODDY,

5-7d MECHANICSTOWN, FRED. CO., MD.

Comb Fdn., Bee-Hives, and other

APIARIAN SUPPLIES.

5-7d **JAS. A. NELSON, WYANDOTTE, KANS.**

HAVING moved my large queen-rearing apiary from Lewisville to Milton, I will still furnish pure Italian bees and queens in any quantity and shape. Those wanting to start apiaries should write for prices. I also will furnish eggs from California bronze turkeys, at \$1.50 per sitting of 9.

GEO. W. BAKER, Milton, Ind.

THE PRACTICAL BEE-HIVE, one of the best, L. frame, a complete hive, sent on receipt of \$2.50. Bees, queens, and supplies; also Plymouth Rock and Brown Leghorn eggs, \$1.50 per sitting. Address

T. G. ASHMEAD, Williamson, Wayne Co., N. Y., 3-19d

C. W. Phelps & Co's Foundation Factory.

SEE ADVERTISEMENT IN ANOTHER COLUMN.

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CIRCULARS RECEIVED.

The following have recently sent us their price lists: Dougherty & Wiley, Indianapolis, Ind., an 8-page list of bee-supplies. W. H. Osborne, Chardon, O., a 12-page list of poultry. Wm. Hoyt, Ripley, Me., a 4-page list of bees and queens. Chas. D. Duval, a 4-page list of bees and queens. Frank McNay, Mauston, Wis., advertising sheet of apiarian supplies.

C. P. Bish, Petrolia, Pa., a 12-page list, hives a specialty. A. D. D. Wood, River Junction, Mich., an 8-page list of bee-supplies. C. M. Goodspeed, of Thorn Hill, N. Y., an 8-page club list of papers and magazines. E. T. Jordan, Harmony, Ind., a 4-page list of bees and queens. J. W. Eckman, Richmond, Texas, a 4-page list of bees and fun. J. J. Waldrup, Staples Store, Texas, an advertising sheet of bee-supplies.

T. S. Wallace, Clayton, Ill., a 1-page list of bees and queens. Martin & Macy, North Manchester, Ind., an 18-page list of bees and poultry.

From Watts Bros., Murray, Pa., we get a circular of 15 pages that deserves special mention. The first 21 pages are devoted to a description of bee-hive work and implements, the remaining part of the work being the price list. They give our ABC book so kind a notice that we are tempted to extract from it as follows:

"As the title indicates, it goes over the ground, from A to Z. It is fully up to the times, and is an invaluable aid to every bee-keeper. Its value is not to the mere art alone; but the author's fervid enthusiasm for the right, and his intensely practical views of religion, are so blended with the purely technical in all his writings that none can read them without being doubly benefited. The book is a mint of apicultural knowledge."

The following were printed recently at this office:

James M. Hyne, Stewartsville, Ind., a 12-page illustrated circular of bee-supplies.

Elijah Detusk, Friendship, Va., a 16-page list of apiarian implements.

A. B. Johnson, Clarkton, N. C., a 1-page sheet of bees and queens.

Jas. Erwin, Smith's Grove, Ky., a 4-page price list of bee-supplies.

CONVENTION NOTICES.

The Western N. Y. and Northern Pa. Bee-keepers' Association will hold their next annual meeting at Randolph, N. Y., May 4, 1886. A. D. JACOBS, Sec., Jamestown, N. Y.

The Progressive Bee-keepers' Association will meet in McComb, Ill., April 9, 1886, afternoon and evening. Essays will be read, and an address given by Rev. E. L. Briggs, of Iowa. Everybody interested in bee-keeping is invited to attend. J. G. NORTON, Sec.

The Northeastern Kentucky Bee-keepers' Meeting will be held at Covington, Ky., on Tuesday, April 16, 1886. As the bee-hives are needed, and it is hoped that the meeting will be well attended, for this Society has the praise of being among the best in the State. The Rev. L. L. Langstroth has been invited to attend; also C. F. Muth, G. W. Demaree, and others. ALEX. W. STITH, Sec.

The semi-annual meeting of the Progressive Bee-keepers' Association will be held at Grange Hall, Bedford, O., on Thursday, May 6, 1886, at 10 o'clock A. M.

Address by the President, C. F. White, of Euclid.

"Bees and Fruit,"—H. M. Chapman, of Collamer.

Essay by J. R. Reed, of Chester X Roads.

Subjects for discussion.—The Requisites of a Complete Hive. Which is more profitable—comb or extracted honey? and how shall we secure the largest yield of either?

There will be a "Question-box."

All interested in apiculture are requested to circulate this notice, and are cordially invited to come, bringing their lunch-baskets.

Miss DEMA BENNETT, Sec.

Bedford, Cuyahoga Co., O.

Italian Queens, and 2-Frame Nuclei
A SPECIALTY.

My queens are reared from an imported mother, and in full colonies. Untested queen, in April, \$1.25; in May, \$1.00. Tested, in April, \$2.50; in May, \$2.00. Two-frame nuclei with untested queen, in light shipping-boxes (frames wired), in April, \$2.75; in May, \$2.50; in June, \$2.25. If larger nuclei are desired add 75c for each frame wanted. Send for my circular and price list free. Address

A. B. JOHNSON,
CLARKTON, BLADEN CO., N. C.

ITALIAN QUEENS AND NUCLEI.
Prices in February and March GLEANINGS.
7.9d ANNA M. BROOKS, Sorrento, Fla.

SCALE and MIRROR CARP for sale by the 100 or 1000. A fine lot of spawners now ready for shipment. 7tfdh W. L. MCINTIRE, Mt. Vernon, O.

ITALIAN BEES, \$6.50 per colony; five for \$30.00. Queens from Hall and Hayhurst. Safe arrival and satisfaction guaranteed. E. A. GASTMAN, 7d Decatur, Illinois.

Pure Italians WITH TESTED QUEENS. I can dispose of a few colonies at fair prices. As to quality of bees, and personal character, I refer to J. E. Pond, Jr., Foxboro, Mass. SAM'L COOMBS, FOXBORO, MASS.

EGGS FROM FANCY POULTRY.

Plymouth Rocks, 3 yards, 1, 2, 3 \$. Wyandottes, 2 yards, 2, 3. Houdans, 2 yards, 2, 3. White and Brown Leghorns, 2 yards each, \$ each. I have now in my yards, fowls from 5 of the best breeders in America. P. W. CORYA, M. D., Moore's Hill, Ind. Reference, President Moore's-Hill College.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is often times quite an accommodation to those who can not afford higher-priced ones.

10 black and 10 hybrid queens for sale now. 35c for black queens, 50 for hybrid queens.

KENNEDY & LEAHY,
Higginsville, Lafayette Co., Mo.

I have over half a dozen hybrid queens for sale at 50 cts. each. Safe arrival guaranteed. Ready by April 1.

S. H. COLWICK,
Norse, Bosque Co., Tex.

8 or 10 hybrid queens for sale at 65 cts. each.
G. W. BECKHAM, Pleasant Hill, S. C.

Recent Additions to the Counter Store.

FIVE-CENT COUNTER.

1 INK POWDERS..... | 40 | 3 50
Violet, green, blue, orange, black, and red. Each package will make two ounces of good ink. We are using the same in our office, and do not find it inferior to any in the market.

TEN-CENT COUNTER.

CLUE, ROYAL, mends every thing.... | 90 | 8 00
This is the best cement we have ever tried. Almost any article mended with it will break anywhere else before the place mended. It holds honey labels on tin, etc.

5 CEMENT, RUBBER..... | 85 | 8 00
For mending rubber boots, rubber shoes, and all kinds of rubber goods. An article worth its weight in gold, for the saving of health, annoyance and trouble. Printed directions for use accompany each box.

FIFTEEN-CENT COUNTER.

4 INSECT-POWDER GUN..... | 125 | 11 00
A beautifully finished instrument with a flat rubber ball instead of the flat balls commonly used. The nozzle is polished zinc, and unscrews. This will also answer for spraying house-plants, if filled with water instead of insect-powder. Neatly made, and packed in a strong pasteboard box.

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—There is no new feature in the market. Demand from manufacturers is exceedingly dull, while it is good for jar honey from the jobbing trade. Demand is fair for comb honey.

Extracted honey brings 4@8c on arrival; and choice comb honey, 12@15c in the jobbing way.

Beeswax.—There is a good demand for beeswax, and arrivals are fair. We pay 25c per lb. for good yellow, and have paid 27c for a lot of fancy.

CHAS. F. MUTH & SON,
S. E. Cor. Freeman and Central Avenues,
Mar. 23, 1886. Cincinnati, Ohio.

BOSTON.—*Honey.*—No change in honey or wax.
BLAKE & RIPLEY,
Mar. 22, 1886. 57 Chatham St., Boston, Mass.

CLEVELAND.—*Honey.*—The market is unchanged since our last report. Best white 1-lb. sections are in good demand at 14c; 2 lbs., slow at 12@13. Second quality is entirely neglected. Old is slow at 8@10. Extracted, 7@8. *Beeswax*, very scarce at 25.

A. C. KENDEL,
Mar. 20, 1886. 115 Ontario St., Cleveland, Ohio.

MILWAUKEE.—*Honey.*—The supply of choice comb honey in sections is not equal to the demand, and consignments of such are wanted. We can quote: Choic 1-lb. sections, white, 16@18
Common 1-lb. " 14@15
Dark honey, slow, 12@14
Extracted, in kegs or bbls., white. 8@9
Beeswax, wanted. A. V. BISHOP,
Mar. 20, 1886. 142 W. Water St., Milwaukee, Wis.

DETROIT.—*Honey.*—Best honey in 1-lb. sections, 13@14c. Stocks in commission houses are being gradually reduced. *Beeswax*.—In good demand, at 25@27.

M. H. HUNT,
March 22, 1886. Bell Branch, Mich.

CHICAGO.—*Honey.*—The market is without particular change, unless it be to a little higher range of prices for choice domestic honey in the comb, some selling up to 18 cents per lb. Extracted is dull, with large offerings, from 6@7c per lb. *Beeswax*, 22@26c; not much offered. California comb honey, 9@12c in about 60-lb. cases, 2-lb. sections.

R. A. BURNETT,
Mar. 20, 1886. 161 S. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—Sales of comb are good, while extracted is very dull and low. One-pound sections wanted; all other grades of stocks are well supplied.

Comb, 2-lb. sections, California, 11@12
" 2-lb. " Eastern, 12@13
" 1-lb. " Extra white, 14@15
" 1-lb. " Dark. 12@13

Extracted California, in 60-lb. tin cans, 5@6c, owing to low freight. Eastern white, 5@6c; Southern, 3@4c. *Beeswax*, 23c. CLEMONS, CLOON & CO., Cor. Fourth & Walnut Sts., March 23, 1886. Kansas City, Mo.

FOR SALE.—I have fourteen 22-gallon kegs of very thick dark honey, which I offer at 4c per lb., by the keg of 250 lbs., delivered at depot here. Also one keg of nice golden honey at 5c per lb. Sample sent on application. Kegs iron bound, and of best make.

M. J. HARRIS, Clay City, Clay Co., Ill.

WANTED.—Light honey in barrels or $\frac{1}{2}$ barrels. Address, with sample and lowest cash price, L. P. CHRISTIANCY & CO., 153 Summit St., Toledo, O.

FOR SALE.—500 lbs. of well-ripened poplar and clover honey at \$6.00 for keg of 100 lbs., keg thrown in. Sample by mail, 5c. CHAS. D. DUVALL, Spencerville, Mont. Co., Md.

FOR SALE.—I have about 1800 lbs. of clover honey, warranted pure, in kegs, some 10-gallon and some 15-gallon. I will take 7c per lb. for the lot here at depot; single kegs, 7 $\frac{1}{2}$ and 7 $\frac{3}{4}$ cts. Kegs thrown in. MONT. WYRICK, Cascade, Iowa.

Wanted, Orders for Fdn.

At 45 cts. for heavy, 55 cts. for light. Wax worked. Tin Points, \$1.00 per 500. Basswood-trees 1 to 3 ft. high, \$1.50 per 100; 5 to 8 ft., \$4.00. Basswood seed, \$1.00 per 1000, postpaid; also Wire Nails, Smokers, and Extractors. Send for Circular. 10% discount on all cash orders received before April 15th.

CHAS. STEWART,
67d Sammons, Fulton Co., N. Y.

 **SURE TO SEND**
FOR MY NEW
PRICE LIST FOR 1886,
Before purchasing your Bee-Supplies. Cash paid for Beeswax. 7tfd
A. B. HOWE, Council Bluffs, Ia.

CHAFF-HIVE APIARY AND FACTORY
IN MISSOURI. PRICE LIST FREE.
JOHN C. STEWART,
7tfd Hopkins, Nodaway Co., Missouri.

1884. **TAR - HEEL APIARIES.** 1886.
Warranted 4-ABBOT L. SWINSON-71, 66, American, Al-
QUEENS, \$1 Each in Proprietor,
May GOLDSBORO, WAYNE CO., NO. CA. Syrians, and
See Gleanings, 1st No. Mar. and May. List now ready.
Carniolans.

P. ROCKS! Choicest pure-bred stock. Eggs, \$1.50 per 13. (Ref. Ed. Gleanings).
7tfd YODER & METZLER, E. Lewistown, Mah. Co., O.

FRIENDS, REMEMBER
That I expect to sell Italian Bees and pedigree Poland-China Pigs again this coming season at hard-time prices N. A. KNAPP,
7d Rochester, Lorain Co., Ohio.

SECTIONS, \$4.25 PER M.
7tfd S. Y. ORR, Morning Sun, Iowa.

FOR SALE. 30 COLONIES ITALIAN BEES in good condition, on 7 Langstroth frames, in shipping-boxes. \$4.50, or shipped in Parker chaff hive, \$6.50 per colony. Purchasers for the above can, if they prefer, send their cash to A. J. Root, Medina, O.

WM. AMELANG,
Ottumwa, Wapello Co., Iowa.

PLANTS! Raspberry, Strawberry, R. Mulberry, etc. Reduced rates. Price list free.
7d YODER & METZLER, E. Lewistown, Mah. Co., O.

BEES FOR SALE. On account of the death of my husband, I offer for sale 7 good swarms of bees in two-story Langstroth hives, at \$3.00 each. The hives are new. Ready to ship. Address MRS. MAC MABEE,
7d Care of Rev. J. L. Vass,
Jackson, Tenn.

BUCKEYE SECTIONS, V-GROOVE.

WHITE AS SNOW. ANY SIZE. VERY CHEAP.
We manufacture the SCIENTIFIC BEE-HIVE; shipped in the flat (body and frame); can be set up in five minutes, without hammer or nails. This hive beats them all for box honey. Send for circular to
7d J. B. MURRAY, Ada, O.

BEES FOR SALE.—I will furnish full colonies of bees on good worker-comb, in good Langstroth hives, well painted, for \$5.00 each, from April 15 to May 15, delivered on board the cars.
7-9db ALBERT POTTER, EUREKA, WINNEBAGO CO., WIS.

BEES FOR SALE CHEAP.
100 COLONIES of Pure Italian bees, in first-class hives, for sale at prices to suit the times. Write for prices before buying elsewhere.
7-8d W. A. HOUSE, MANLIUS, N. Y.



Vol. XIV.

APRIL 1, 1886.

No. 7

TERMS: \$1.00 PER ANNUM, IN ADVANCE;
Copies for \$1.00; 3 for \$2.75; 5 for \$4.00;
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NOTES FROM THE BANNER APIARY.

No. 76.

THE WINTERING PROBLEM.

A FEW weeks ago I received a call from Dr. C. M. Joslin, of Clio, Genesee Co., Mich. He has made a special study of the wintering problem, having tabulated a large number of facts concerning it. We had a very pleasant visit and discussion, and I urged him to write his views for publication. He declined, but finally agreed to send them to me, together with an article written by Mr. Quinby, about 12 years ago, which takes much the same view in regard to the importance of a high temperature as was advocated at the Detroit Convention. In view of the ideas that have lately been put forth upon this subject, I think Mr. Quinby's article will bear repetition. It was published in the *National Bee-Journal* for 1874, page 1 of Jan. No., and is as follows:

"I have said considerable on this subject already, but perhaps it will bear repetition. Much more ought to be said, and some things repeated, and examined in the strongest light to be found. The cause of the dreadful calamities of the past two winters should be understood as far as possible.

"A post-mortem investigation often discloses the immediate cause of a person's death. It may prove to be tubercles of the lungs, and then, unless the inquiry goes further, and finds the cause producing tubercles, but little is gained. When bee-keepers find the cause of the death of so many bees to be dysentery, it behoves them to look further, and, if possible, ascertain the cause of that. When we are not positive on any subject, we are apt to decide

according to evidence that makes theory—or some preconceived notions of our own—probable, allowing it to take the place of direct testimony.

"Among the many investigators that have acknowledged dysentery as the cause, some few have gone further, and decided that the malady is produced by the quality of their stores—impure honey; and, to prove that honey is not healthful for them, claim that syrup of sugar, when fed, exempts from disease. Having fed the syrup quite extensively, I am pleased with the result when fed as a substitute for honey; but I have no faith in it as a preventive of dysentery, for I have fed stocks with nothing but that, and had them affected with it seriously. Lest some may think I mention this ease to support a favorite theory of my own, I will give the statement of Mr. Elwood, of Herkimer Co., N. Y., who is a candid man, a close observer of facts, and one who has no theories of his own to bias his judgment. One year ago he fed several stocks with syrup alone, and every one had the disease as badly as those that had no syrup. These cases, even if we had no others, would show very clearly that the cause is not found in the food. It is further proved, by the case related by Mrs. Tupper, where a row of stocks that gathered their stores from the same field, each alternate one was taken and removed to a cold exposed situation, while the rest were kept warm. The first perished with dysentery, while the latter wintered well. More than 20 years ago [now 32 years—W. Z. H.], I became satisfied that cold weather produced dysentery. I had some stocks left on their summer stands till late in the winter, in a cold, bleak corner of the yard. Snow covered the ground. Late in Jan. they became uneasy; hundreds would leave their hives on a cold day, dis-

charging their faeces the moment they left it. I put them into warm quarters; such as were left in the hive were quiet, and came out all right in the spring. Here is a case where they were cured of what the cold had produced.

"Food consumed by beasts generates heat, and they take it generally in proportion to the severity of the weather, to keep themselves warm. Bees seem to act on the same principle, but being, probably, natives of a warm climate, their structure is different from many animals. Being small, one alone can not generate heat enough to keep in life in a cold atmosphere. Only a compact cluster can maintain it, and then not without an abundance of food. Bees do not, when in a cold situation, seem to digest, or burn, their food, in keeping up warmth, as do the larger animals. It is exemplified when they have worked in surplus-boxes till late in the season. Take off these unfinished boxes some cool morning before the bees have all gathered into the hive, and most of them will fill themselves with honey before they can be got out of the boxes. The result is, that the honey swallowed is not digested, and warmth created, but is discharged as faeces from each as are scattered, before they regain their warm hives. When bees are very quiet in the hive in very cold weather, some must be on the outside of the cluster—I mean the cluster inside the hive between the combs, and, of course, colder than those inside. But when the weather continues cold for months, as was the case for the last two winters, those outside bees, stiffened by cold, are unable to change their position for a warmer one; their food is not digested, their bodies become swollen with faeces, and they must leave to discharge it. If the weather continues cold, the colony continues to grow smaller in proportion to the length of time and size of colony. Some colonies maintain the proper warmth by having the honey distributed so that they can have empty cells near the center, into which they can creep for mutual warmth, being more compact. Bees can exist but a short time in cold weather, when between combs of sealed honey; but they will, when properly clustered, endure any degree of cold for a time. When made warmer, don't think them safe until they are warm enough, and remain so long enough to enable them to change places with those on the inside; otherwise the result is fatal. If this is correct, it will show those who have housed their bees and lost them that they were not warm enough even then. I am aware that some will say that they have thus successfully wintered bees many times, proving to themselves beyond doubt that they were warm enough, not considering that the place that was warm enough in 1870 was not so in 1871-'2, because of the steady cold. This is proved still stronger by not finding a single case in the past two winters where the bees came out right, when only a few were housed together, unless they had the advantage of artificial heat. In discussing this subject before, I have said: 'Try the experiment of keeping them warm.' I would now say, that just this has been tried, and success has followed.

M. QUINBY.

"St. Johnsville, N. Y."

Dr. Joslin then comments as follows:

"While it is shown that cold is the cause of death, the best temperature is not mentioned. I will therefore quote from the ninth page of the same journal, the summing-up of the wintering of bees, by S. T. Wright, of Illinois. He says: '1. A productive

queen, with bees enough to rear brood; 2. Suitable combs stored with wholesome food; 3. A pure atmosphere, of a suitable temperature, about 40° to 50° above zero being best; 4. No disturbance; total darkness and stillness being best for keeping bees quietly confined to their hives.'

"This was 12 years ago, and the problem was solved. I now come down to 1881, and quote from the pen of Geo. Grimm, as recorded in GLEANINGS, page 128, 1881. He says, 'Avoid late breeding in the fall; also avoid winter breeding;' to do which he keeps the temperature at 42°. Again, on page 329, GLEANINGS for 1881, he says: 'I repeat, leave your bees out as long as possible; they will thus consume all unsealed honey they have, and you may be assured that *all brood will have hatched*.' Another thing, and one of *more* importance, is having bees so chilled they will not again begin to breed till removed from the cellar in the spring, if the temperature is kept at 42°. Grimm's losses were 5 to 10 per cent, while H. R. Boardman's were *nothing*, and Boardman goes just the reverse; viz., encourages late breeding, also breeding in the cellar toward spring, to do which he keeps the temperature at 45° and upward. He says, if the temperature goes below 45° they take on a bad condition; 42° is not warm enough after they begin to breed, as, if lower than that, the bees have to consume too much food in keeping up the temperature. In deep wells the oxygen rises, leaving the carbonic-acid gas to settle, producing what is called 'damps,' which is death to animal life. This principle applies to all cellars or repositories where the air is undisturbed. A two-inch pipe running from the stovepipe to within two inches of the bottom of the cellar will suck up the gas and change all the air in the cellar in a few hours; but this does not regulate the temperature. I prefer the Boardman plan (see GLEANINGS, 1883, Oct. No.). It is good as far as it goes. I would add sub-earth ventilation, with which the temperature could be kept at about 46° until breeding begins in February, then resort to artificial heat to keep the temperature above 45°. If the weather should be very warm, raising the temperature too high, then resort to sub-earth ventilation to keep down the heat, which would be much better than eakes of ice or tubs of water.

"Bees do not die in summer, for they are warm enough, and have pure air. These conditions are all that is necessary to winter bees. All animal life requires pure air, and bees are no exception. When friend Hutchinson buried 57 colonies in one pit, without ventilation, the bees consumed the oxygen, leaving only carbonic-acid gas, which produced death. A little ventilation would have saved them.

"As for the pollen theory, bees never eat it when kept warm enough, hence that theory vanishes like dew before the morning sun.

"Dr. C. M. JOSLIN.

"Clio, Genesee Co., Mich.

"P. S.—I should like to have spoken of the temperature of 60° to 90°, and the extra amount of food eaten, the same as when too cold; of the breaking-up of the cluster to change about to eat; of the medium between the two extremes producing quiet and keeping the bees in the hive where they belong, etc., but I pause for this time. Dr. C. M. J."

There is much in the above that I should like to criticise; but the article is now too long, and I shall

be obliged to wait until another time. I hope others will criticise the above. W. Z. HUTCHINSON.
Rogersville, Genesee Co., Mich.

A VISIT TO L. C. ROOT.

SOMETHING ABOUT THE WAY FRIEND ROOT WINTERS HIS BEES.

IN fulfillment of a long-cherished wish and purpose, I went east, after the recent Rochester bee-meeting, to Mohawk, and spent a couple of days with L. C. Root, son-in-law of the late Moses Quinby, and ex-president of the North-American Bee-Keepers' Association. Mohawk is a pretty little New-England-looking village in the valley of the Mohawk River, from which it takes its name. It must be lovely in the summer-time, embowered in trees, environed with hills, and with the beautiful stream just named flowing through it. Mr. Root lives in a neat story-and-a-half house on the edge both of the river and village. Needless to say, I received a warm brother bee-keeper's welcome. The family consists of Mrs. Root, two daughters, yet in the bloom of girlhood, and the widow Quinby, a bright, cheery, intelligent lady, younger looking than I expected to find her. Though a veritable member of the family, always with them at meal-times, the widow spends most of her time in a spacious parlor bedroom upstairs, the most conspicuous object in which is a large picture of her late husband, having a most life-like look, and wearing the calm, placid expression so characteristic of the original during life. I could have imagined I had seen him but yesterday, though it was in 1871 I last met him, at the Cleveland meeting of the N. A. Bee-Keepers' Association, when, though president, his native modesty impelled him to vacate the chair, and insist on its being filled by myself, as one of the vice presidents—he felt so much more comfortable, he pleaded, sitting in a less conspicuous place. It was intended, as a memento of the love and esteem cherished for his memory by those present at the Detroit Convention, in December last, that the present to his widow, then and there got up, should take the form of a portrait of Mr. Quinby; but when I saw the one that had hung so long on the wall of the parlor bedroom I felt that it could not be superseded or displaced by any substitute. So the committee that had the matter in hand, being made aware of this, concluded to present a book. The one chosen was "Lord's Landmarks of History," a large-typed, beautifully bound work, in five volumes, I think. Mrs. Quinby prizes it much, spends considerable time in studying it, and is grateful for the tangible proof of respectful remembrance, both of her precious dead and of herself, to which it testifies. May she pass a long, quiet evening of life in the bosom of the family that loves her so well for her own sake, and for the sake of the long-since departed one, whose memory is still, and will continue to be, green and fragrant, not only in the recollection of his immediate descendants, but of all bee-keepers, whether they knew him personally, or only by his well-earned fame as one of the pioneers and apostles of modern apiculture!

Of course, my visit was chiefly for the purpose of gleanings all I could from the field of thought and experience in which Mr. Root has labored so conspicuously and honorably for many years. But

bee-talks are almost unreportable, especially when the convention consists of only two members. I had the opportunity of inspecting Mr. Root's method of wintering, and the condition of his bees at that time. The close-ended frames are tied together and set on a bottom-board, having a large circular hole in the center. On top of the frames is a factory-cotton cover. The compact sets of frames are stacked one above another with considerable space between tiers, admitting of inspection from below; and it was an interesting sight to see the clusters of golden-banded insects hanging down, in some cases even with the bottom-board, or even still lower down. Then, turning aside the cloth cover, it was evident that the frames were full up to the brim, indicating strong stocks. With the thermometer at 46°, the bees were very quiet—hibernating, I should say—certainly in *repose*. These colonies, about 60 in number, were in a portion of the cellar partitioned off for their exclusive use, and right under the living-room, where a base-burner coal-stove is going day and night. Beside the stove is an auger-hole through the floor, sufficiently large to admit the passage of a small round thermometer, whose records are daily noted and recorded. A number of other colonies are housed in a repository not far from the house. These we did not examine, for they were rather uneasy, and Mr. Root feared the temperature was a little too high, though not so high as Mr. Barber tells us his bee-cellars often are. Mr. Root has a couple of out-aparies, as he considers his home field overstocked, there being over 1000 colonies within a three-mile radius. He finds the care of these out-aparies very laborious, and questions if it pays to keep yards so far away from one's residence.

Mr. Root kindly drove me over to Frankfort, a little village about five miles distant, where lives an old friend of mine, Hon. Harris Lewis, who has for many years paid an annual visit to Canadian dairy conventions, at which his presence is greatly prized. Taking an interest in dairying as well as bee-keeping, myself, I have usually assisted at these meetings, and spent many pleasant hours with Mr. Lewis, both in public and in private. Mr. Lewis used to keep bees many years ago; and as the heathenish insects were then, as now, very apt to swarm on Sundays, he was in the habit of staying home from church to watch them. A Baptist minister in the neighborhood had commenced bee-keeping with a single hive; and since Mr. Lewis was staying home from church anyway, asked leave to bring his one hive, that they might be watched along with the rest. Leave was given, and the minister's hive stayed all summer, but did not swarm. In the fall he asked Mr. Lewis how he could get the bees out of the hive, so as to rifle it of the honey. Mr. L. told him if he would lift it off the bottom-board, and wheel it home on a wheelbarrow without any bottom, he thought the bees would all be out of it by the time he arrived. The minister came with his bottomless barrow on which the hive was quickly placed, he starting on his dubious journey, and Mr. Lewis to go indoors and roll on the floor with laughter at the mischievous joke he had played on the poor parson, who soon returned in a sorry plight, for he had not been wise enough to walk *ahead* of his vehicle. The consequence may be better imagined than described. Mr. Lewis helped him smother the bees remaining in the hive, and make a new start with the hive

minus the bees. He owns it was a cruel trick; he would not repeat it, now that he is older, wiser, and better; but he thought then, if the minister was naughty enough to get him to watch his bees on Sunday, while he was preaching, he deserved some punishment. Mr. Lewis has lately remarried, after a long period of widowerhood. As we sat at the tea-table, he remarked that he thought he would start bee-keeping again, to which a soft and gentle voice responded, "No, you won't;" and I don't think he will.

Mr. Root is a quiet, unpretentious man, like his lamented father-in-law, but thoroughly up in bee-lore, and well maintains the family reputation in apiculture. He is a good citizen, a warm Prohibitionist, and his care in bringing up his children is evidenced by the fact that he never allows them to go to the public school, from fear that their minds might be unfavorably affected by the evil influences of undesirable schoolmates. A black-board on the sitting-room wall, with a problem on it, gave proof of the assiduous care and pains taken in the home school. But not every family has a mother, once an effective schoolteacher, able and willing to add to household duties the task of teaching the little ones. My visit was all too short; and, if practicable, I shall certainly accept the cordial invitation given to repeat it some time, and stay longer.

W.M. F. CLARKE.

Guelph, Ont., Mar. 15, 1886.

HOW TO PREVENT ROBBING.

SOME GOOD HINTS ON HOW TO TELL WHEN TO STOP EXTRACTING.

EVERY one who keeps very many bees will sometimes have some trouble from robber-bees; but considering the amount of work that we do with bees, we have had but very little robbing. We do not raise queens to sell, and do not have to open hives when there is a dearth of honey. We raise extracted honey only, and never extract when the bees will work on honey to any extent. We get the most of our honey from white clover and basswood. Clover comes first, and lasts until the basswood commences. The latter is the last from which we get any surplus. During this time we are traveling the roads every day, going to our different yards, and are passing the basswood-trees. We keep close watch of the blossoms, and can tell very nearly how long it will last, and we know that in good weather the bees will fill a full set of combs in five or six days.

Now, when the end of the season is within a week of its close we commence to leave in full combs of honey. The first day we leave in on the back side of the hive one comb full of honey. The following day we are at another yard, and we leave in two or three full combs of honey—putting them in the back side of the hive; the next day we are at another yard, and we leave three or four, or perhaps five, combs of honey. It depends on how fast the basswood is giving out. Our aim is to have the hives full of honey when the basswood flow is over. Our hives hold nine combs, and we keep on extracting until the bees begin to steal; but just as soon as the bees begin to crowd into the house we cease extracting, and our hives are by this means full of honey and brood. But when honey is coming in rapidly from basswood, the queen does not get a chance to

put in much brood. The bees usually gather enough honey after the basswood is over for their present needs, but no surplus. We always guard against getting the bees to robbing. When we have to open hives out of season, we do it just before sundown.

HOW TO STOP ROBBING BY MEANS OF COLD WATER.

In this connection I will tell the best thing I ever found to stop a hive from being robbed; i. e., use cold water. I raise asparagus for market, and always have a large quantity of it in the fall. Now, if I have opened a hive and got the bees "on the steal," I cut a large armful of asparagus and bank up the hive with it. I then sprinkle on water. The asparagus holds so much water that the bees can not get into the hive, and the bees inside seem to think that it is a wet day, and they stay at home. Wet the asparagus two or three times an hour, and the job is done. If you have not the asparagus, use straw or a blanket, or something to wet the bees in their endeavors to get in. The idea is, to make the robbers crowd their way in through water. They won't do it. Try it.

HOW WE MARKET OUR HONEY.

Our home market takes about 10,000 to 15,000 lbs. We have our honey all graded as to quality. Our first extracting we retail at 8 cts. per lb.; our second extracting, about 9 cts.; best white-clover and basswood, at 10 cts.; in 100-lb. lots, one cent per lb. less. We put up considerable honey in tin pails, and sell at the above prices, with the additional cost of the pail. We keep two stores in town stocked with pails of honey—allowing them 10 per cent for selling. We give our customers the privilege of returning pails when empty, if they wish, but so far we have had but few returned. We sell from 6000 to 10,000 lbs. to the cracker-factories, who take our darkest grades, four or five barrels at a time, paying from 6 to 7 cts. We get our barrels back again from the cracker-men at Dubuque. Our old neighbors who have gone west, send back for 100-lb. kegs for their own use; the rest is sold to dealers in Iowa, Minnesota, Dakota, etc. We sell our best grades of honey at 8 cts. by the barrel of about 360 lbs.; no charge for the barrel. In 100-lb. kegs we sell for 9 cts. per lb. Last year we sold 21 barrels to Messrs. Thurber, Whyland & Co., of New York, at 8½ cts., delivered. After deducting freight and cost of barrels we had a fraction over 7 cts. for the honey. We did not send any east this year, as the demand and prices were better west. We have worked off the bulk of the crop, having on hand now about 7000 or 8000 lbs. not sold, and that will be gone by the time we get another crop. We usually keep over a few barrels, in case our bees should want feeding, as we never feed sugar. No, we have never fed a pound of sugar to our bees yet, and don't want to. We find it no small part of the bee-business, to work off so much honey and obtain good prices and get our pay for the honey. Last year we got caught on 12 barrels of honey, amounting to \$345.60, sold to Geo. W. House, of Manlius, Onondaga Co., N. Y. The honey was shipped Nov. 6, 1884. Dec. 9, I received his note by mail for the amount, due in a month. Time passed, no pay. I wrote to him; no answer. I wrote three or four letters. Once he replied, "Pay soon." I made inquiries about him, and found it was a bad job. He has never paid a cent. I have his note for \$345.60, for sale cheap. Who bids?

Now I should like to ask our large honey-produce-

ers how they manage to get good prices for their honey, and never meet with losses. Is there any sure way to find out on short notice if a man is reliable and honest?

E. FRANCE.

Platteville, Wis., Mar., 1886.

Friend F., you have given us just the information wanted. See page 276. Your honey, then, nets you, even in your largest lots, not less than 7 cts.—I am surprised and greatly pained to find that you have been made a victim of George W. House. For more than a year I have been telling him we should have to publish him if he didn't stop purchasing honey for which he didn't pay. It is a very difficult matter for an editor to decide how far he should bear with a man of this kind before warning the bee-friends against him. Mr. House purchased honey in the same way from several other bee-friends, including Mr. Chalon Fowls, of Oberlin, Ohio. His plan is to give his note, when his note is good for nothing. He has obtained more credit, from the fact that he has been a prominent writer, and a prominent worker at bee-conventions. You did exactly the right thing, friend F., in giving the whole transaction, and I hope no one will trust him again after this public exposure. You ask if there is any way to find out on short notice. It is a little difficult with bee-keepers, as they are not quoted in our commercial reports as men who are in mercantile or manufacturing business. You can do this, friend F.: Drop a postal card to us; or, if the case is urgent, telegraph. Had you sent us a telegram before you shipped that honey, we would have wired you back instantly, "Under no circumstances trust the party a copper." Mr. H. has been making promises all along to settle up all these matters; but I had no idea that he had purchased from any one any such sum as you mention.

FIFTEEN TONS OF HONEY.

HOW FRIEND COGGSHALL MANAGES.

FRRIEND ROOT:—Mr. E. France, page 122, gives you his method of handling apiaries away from home. I have four apiaries. One is ten miles away, the others are two or two and three miles respectively. For this purpose I usually lease plats of ground for three years, and hire the man who lives there to hive the swarms. Let me say, here, that fifty or sixty colonies in one location will gather more honey than 200 colonies, year in and year out.

I advocate mixed farming, and extracted and box honey in the same yard. There are always some colonies that will not work in the boxes readily, and some that are not strong enough. What extracted honey I get from these is clear gain, and they are the better for it, as it gives the queen a chance to lay. A good way to keep the queen below is to lay thin pieces of boards over the frames, say 3 pieces 5 inches wide on a Langstroth hive. I would put them close together at the back end of the hive. This helps, also, to keep honey below for winter stores.

I hired my help by the day for about a month last year, except those I hired to hive the swarms. These latter did not take off any honey. I had over

22,000 lbs. of extracted and 8000 lbs. of box honey. One day, with the help of a man and a boy in the forenoon, and a man and myself in the afternoon, I took 3100 lbs. of extracted honey.

For a honey-house I have a building 12×16 and 8 feet high, boarded up and battened, with shingle roof, and with matched flooring. Such a building can be put up for \$30, made out of hemlock lumber, with third-class shingles. I have the door where I carry in the honey, on a level with the ground surface, so I do not have to step up when I am carrying in a load of honey.

I always have a stationary extractor arranged so I can draw the honey at any time; also a can for the storage of extracted honey, with a faucet, and set high enough to run under a barrel. A cheese cloth, fastened on a hoop, fits the storing can. This strainer can be taken and rinsed in two minutes. I use, also, a strainer, or cullender, made out of a tin pan set on a tin bucket, and placed high enough so I do not have to stoop to work. I have a place arranged to set the combs just as high as the extractor, and as close as possible to the extractor. Each barrel, as it is filled, should be marked with the grade, when it is rolled away from the storing-can, and a wire gauze nailed over the hole. I always fill from the head, and I usually leave the honey in the honey-house until I draw to the depot. In the winter I get oak barrels that hold 350 lbs., and wax them by taking out the head, and, with a swab, I wax every seam or joint. I use rosin, two parts, wax and tallow one part. The whole secret is to have every thing ready.

I see Mr. France has a boy to carry three combs in each hand. He should have a carrying-box, so a boy could carry 8 or 12 combs. He then could accomplish as much again work in the same time. Here I am telling how other people ought to do. I intended to tell how I did.

MY STOVEPIPE SMOKER.

The smoker that I use is a stovepipe, 7 in. long, with a bottom in; a hole cut in the side with a slide to shut it off; a hook on one side, and a handle riveted on 6 or 8 inches long. Hang the smoker as thus constructed on the windward side of the hive, with some fire and chips in it. The beauty of it is, you can burn any thing, and you do not have to keep blowing it.

I bought some of your brushes; they did not answer my purpose, so I got some fine broom-corn brushes, made 9 in. wide at the brush end. I have a loop cord on it, and put it around the neck. Let it rest on the left shoulder, and allow the brush to hang by the right hand. It is always at hand wherever you are, and you do not have to stoop to pick it up. It is wide enough to clean a Langstroth frame of bees at one or two sweeps of the brush.

I will say to those who contemplate adopting the reversible hive and frames, Go slow.

18—W. L. COGGSHALL, 220—400.

West Groton, N. Y., Mar. 4, 1886.

Thanks, friend C. Facts like the above, from practical honey-producers, are what we want. I would put in a caution, however, against the use of rosin. Years ago we decided that any admixture of rosin with beeswax would, in time, give the honey a slightly resinous flavor.—Your stovepipe smoker is pretty nearly the Townley smoker, described in the A B C book.

A SWARMING-BOX TO HOLD A FRAME OF BROOD.

FRIEND KALER'S DESCRIPTION OF IT.

THE friend mentioned below has made a box for taking down swarms, arranged so as to hold a frame of unsealed brood, taking advantage of the well-known disposition of bees to cluster around and adhere to such a comb. The cut below, and description, will make it all plain.

DESCRIPTION OF CUT.

A is a swarming-box made to hold a frame of comb; made perforated.

B, rests that hold the swarming-box in place. It also contains slots to receive the handle.

C, the handle of different lengths, to raise the box to a proper height.

D, a frame of comb to place in the swarming-box for bees to cluster on.

DIRECTIONS FOR USING KALER'S SWARMING-BOX.

Get your box clean; take from the hive that the swarm came from (if you like), or some KALER'S SWARMING BOX, other, a nice frame of comb. Place it in the box, swing the box in the rests. Then select a handle to raise the box just under the swarm. When ready, jar the bees into the box. In a few minutes they will be all clustered on the comb in the box. If you are not ready to hive them, or another swarm comes off before you are ready to hive the first one, remove the box from the rests and set it away in the shade, being careful to cover up snugly. Place an other box in the rests, and proceed as in the first case. After they are all in the swarming-box they are almost as safe as in the old hive. Now, when you are ready to hive them (but do not be in a hurry), get things ready and remove the frame from the box gently, and place it in the hive. Cover up the hive, having every thing in shape. Shake the remainder of the bees from the box, in front of the hive. Watch a moment, and see that they start in, and it is done.

W. S. KALER.

Andersonville, Ind., Jan. 28, 1886.



GOOD REPORT FROM A LADY.

FROM 24 TO 48, AND 2820 LBS. OF HONEY; THE PROCEEDS OF ONE COLONY, 279 LBS.

IDO not know that I read any part of the varied matter in GLEANINGS with more interest than I do the reports from different bee-keepers in different localities. When we have had almost a failure, the old adage, "Misery likes company," proves true. In giving our report for the season of 1885, it might be well enough to explain that my position is only that of "general assistant in the apiary." The principal members of the firm are Rev. J. S. Woodburn and W. M. Dougherty (the latter being my only brother). In the spring we lost five or six, and sold five, leaving us about 24 to begin the season with. We raise mostly extracted honey, and by the 24th of June we found the combs full and capped completely. We took 925 lbs., gathered

from the poplar-blossoms. I have been watching in GLEANINGS to see if anybody else had poplar honey. It is dark, thick, sticky, and very sweet. Our children like it on their buckwheat cakes, but it is not salable, even at a reduced price. On the 22d of July we took 1337 lbs. of beautiful basswood honey, well sealed over. In September we took 501 lbs. of buckwheat honey, which, with 100 lbs. of comb, made 2820 lbs. for our season's work, besides leaving the bees an abundance to winter on. I think our bees had access to nearly 100 acres of buckwheat, some of it quite close to them. By the way, how much buckwheat did your acre yield? Ours yielded about 24 bushels to the acre. One colony of bees gave 224 lbs. of honey; it was a pure Italian. Another, a Holy Land, gave 174 lbs., and threw off a swarm June 1st, which gave 195 lbs., making in all 279 lbs., the largest yield in the apiary. I neglected to say, in giving the amount of honey taken, that we also increased, by natural swarming and dividing, up to 48, which number is living yet. Some of them had a fly to-day.

MRS. BELL L. DUNCAN.

Black Lick, Pa., Feb. 8, 1883.

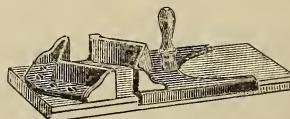
Our buckwheat yielded pretty close on to 40 bushels per acre. Thanks for your excellent report from the Holy Lands, my friend.

AN IRON SECTION-BOX FORMER.

SOMETHING THAT SEEMS TO BE A HELP, EVEN IF IT IS A LITTLE "MACHINERY."

SOME time in February friend G. R. Lyon of Greene, N. Y., sent us a section-box former shown in the cut below.

The machine is made of two heavy pieces of cast iron, arranged so as to slide easily upon a board. Pushed up together they inclose a square space a little smaller than a Simplicity section box; therefore, when with your fingers you quickly stick a box together, either one-piece or four-piece sections, drop it in the former, then, sliding up the movable piece of iron by means of the handle, every corner is pushed up smooth, and no further.



LYON'S SECTION-BOX FORMER.

The corners all come up, and also come out of the former perfectly square, ready to have the starter inserted, when it may be placed directly in the wide frames or in the cases. Where you drive them together with a mallet, they may be square, and they may not; besides, the mallet frequently drives the pieces in too far, where the grooving-saws have cut a little deeper than they ought to do. What looks more awkward than a neat basswood section box, nicely filled with honey, but out of square, because the owner failed to give it to the bees square and true? It seems to me that this instrument ought to have a large sale, even if friend Lyon has, perhaps, got the price a trifle high. He sells them at \$1.00 each; one-fourth off where 50 or 100 are purchased at a time.

DOES THE QUEEN LAY DRONE OR WORKER EGGS AT PLEASURE?

FACTS TO PROVE THAT SHE DOES.

IN Mr. Dadant's article on page 95 of *GLEANINGS* for Feb. 1, he expresses his belief that the external conditions present at the time of the laying of the eggs by the queen determine the sex of the bee to be produced. I have reasons for thinking differently from Mr. Dadant. The queen will lay in worker-cells of foundation before it has been worked out enough to compress the spermatheca in the least, and these eggs will produce workers, and must have been fecundated by the volition of the queen. The queen will also lay eggs in queen-cells, as stated by Cook, which are larger than drone-cells; these eggs, hatching queens, must also have been fecundated by some other process than compression by the cell.

Another evidence, to me, that the laying of fecundated and unfecundated eggs is not automatic with the queen is this: In the fore part of the honey season, when the colony begins to thrive, and commences to make preparations for swarming, the queen will skip over considerable worker-comb to get to the drone-comb, and will fill it with eggs almost invariably. In the well-regulated apiary, but little drone-comb is to be found; therefore the comb-builders will build drone-comb wherever they can, even on the ends of frames; and under the above conditions, if you insert a frame containing both drone and worker comb, the drone comb will invariably be filled with eggs first.

Now, if egg-laying, or, rather, impregnating the egg, were done entirely without the will of the queen, and by the compression and non-compression of the spermatheca, why does she lay in the drone-cells first? And, vice versa, later in the season, when conditions in the hive are reversed, and the honey-flow has almost ceased, it is almost impossible to get a queen to lay eggs in drone-comb without feeding, when the colony is in a normal condition.

Mr. Dadant says that he has replaced drone-comb with worker-comb in the brood-chamber, and the queen did not seem dissatisfied with it; and he says, "If the queens, while laying, were moved by the desire to lay drones (eggs), our replacing of drone-comb by worker-cells would be useless." I suppose by this, he thinks she would show her dissatisfaction by laying unfecundated, or drone-eggs, in worker-cells; but this would be "against the rules," and not natural, and not for the good of the colony; and her laying the eggs in the proper cells indicates to me that she knows what she is about, and lays her fecundated and unfecundated eggs in the proper cells, where they ought to be, and where they will hatch out the proper occupants for the cells they occupy. I think the colony and queen do show their dissatisfaction when we replace a worker-comb to the exclusion of all drone-comb. They build drone-cells in every conceivable place they can find, and it is always filled with eggs as soon as it is built, at a certain time of the honey season; and some writers assert that they even remodel worker-foundation and build drone-cells upon it; and queens frequently go into the surplus-boxes and deposit eggs if there is drone-comb to be found there, and there is none or very little in the brood-chamber. Drone-foundation has been condemned for surplus-boxes, partly, at least, on this account,

In the last paragraph of Mr. D.'s article he suggests that the reason the cells of the wasp are not all filled alike may be on account of her inability to obtain spiders enough at the time to fill all of them alike. This may be so; but suppose that spiders happened to be very abundant, and she could fill them all as full as she does those for the females, in which case, according to Mr. D.'s theory, she would lay none but female eggs, and produce no males. This would hardly be according to nature. Also, if I am not mistaken, Sir John Lubbock says that a wasp always takes the same number of spiders. This would also go against Mr. D.'s theory, and would show that she did not provision her cells in proportion to her success in hunting, but with special reference to their needs, both male and female.

Mr. D. also says: "When the eggs of animals are mature they don't wait, but drop." I think this is not so in regard to queen-bees; for a queen taken from a populous colony, when she is laying, perhaps one or two thousand eggs per day, will stop off short, if she has no comb to lay in; and in case of the wasp, suppose the weather were very unpropitious, and spiders were very scarce, and she could get none, she would have to lay in an empty cell if she were obliged to "drop," as Mr. D. says.

I have not seen evidence enough yet to convince me that the laying of eggs by the queen is automatic, in the sense spoken of in Prof. Cook's and Mr. Dadant's articles.

EDWARD B. BEEBEE.

Oneida, N. Y.

THE AUTOMATIC EXTRACTOR.

SOME HINTS IN REGARD TO USE OF.

YOUR description of the Automatic honey-extractor, as shown on page 52 of *GLEANINGS* for Jan. 15, is very good, but you make a very common mistake in your plan of operating the machine. Instead of starting with a "quick impulse," you should start very gently either way, and turn about one-half way round; then stop and gently but firmly start the reel in the opposite direction, and the impetus given to the comb-baskets will carry them off the vertical center, and they will pass out to their several positions. You may now increase the speed as desired; but if the combs are very heavy, do not turn too fast, but give just enough motion to throw out a part of the honey. To reverse, stop the motion and let the baskets swing clear by the center and nearly to their position, "t'other side out," and then gently start the reel the opposite direction, and the combs will take their new position without even a jar. You may now give sufficient speed to throw all of the honey from this side, and then reverse as before, and finish the side first extracted from. If the combs are very heavy or very tender, it may be well to reverse three or four times, while, if the combs are strong and the honey is new, once reversing will be sufficient. If there should be any brood in the combs, great care must be taken not to dislodge it; but if no brood is present, you can let the thing hum, and 60 seconds is time enough in which to place, extract, and remove four of the heaviest combs; and if this is not fast enough, you must get a machine with more baskets. If you will follow the above directions you may fill the baskets in the

morning with hens' eggs, and reverse them all day without cracking a shell.

Your plan of starting a branch supply-house at the South, I think, is an excellent one, as it will be a great saving of freight and express charges to your customers, in that section. We have also started a factory to accommodate our friends who want extractors at the far West and Southwest. The new works are located at Topeka, Kansas, and are carried on by J. E. Stanley, my brother, who has been, for the past five years, in company with me.

G. W. STANLEY.

Wyoming, N. Y.

HOW TO CHANGE HYBRIDS TO PURE ITALIANS.

ALSO SOMETHING ABOUT FEEDING CHEAP FOOD TO FILL THE BROOD-DEPARTMENT JUST BEFORE THE HONEY SEASON OPENS.

IHAVE five swarms of pure Italians, and nine swarms of hybrids and blacks. I wish to raise queens from my Italians, and Italianize all my hybrids and blacks, this spring, before they can raise drones to mate with their young queens. I am sick of the hybrids and blacks. Now, what is my best and surest way to do it?

When granulated sugar can be bought for 8 cts. per lb., and comb honey can be sold for 11 to 13 cts. per lb., will it not pay to feed bees enough sugar syrup for breeding purposes, and to fill the brood-combs, so that what honey they gather may be stored in the sections or boxes?

I mail you, in a small box, a small vial containing a sample of sorghum, which cost me 15 cts. per gal. How would it do to feed bees with, after the weather gets warm enough so that they fly nearly every day?

W. H. C.

Bucklin, Mo., Feb. 27, 1886.

Friend C., if you have no black bees in your vicinity, the matter can be very easily managed. Encourage the production of drones in your hybrids and full-blood colonies by every means in your power, such as stimulative feeding, and put drone-comb in the center of the brood-nest, before the black bees will ordinarily want it to start drones. Then cut out all drone-brood from your blacks as soon as it appears. Now raise young queens from your best Italian stocks, and there will be a great probability that they will be purely mated; yes, even if there are black bees in your neighborhood. As soon as you find, by their progeny, they are purely mated, well and good; if not, discard them, and so on.—If your bees are lacking in stores, and do not get all they need from fruit-bloom, it will most assuredly pay you to fill up the brood-apartment pretty well just before honey begins to come in. For this kind of spring feeding you can take any kind of food the bees will carry into their hives. Your sorghum syrup is just as good to raise brood as granulated sugar; and perhaps better, if the bees will take it, and they generally will in the spring, when they can fly. Of course, if you value your reputation as a honey-producer, you want to be very sure that not a drop of this goes into the sections. I do not think it will be a very difficult matter to manage this.

HOUSE APIARIES, AND THE WINTERING PROBLEM.

OLIVER FOSTER'S 14-HIVE HOUSE-APIARY.

 N page 178, March 1, friend Wm. F. Clarke asks for the republication of my description of a house-apiary as given in May, 1882. In his foot-notes to friend Clarke's article, the editor says: "Before republishing the article, we should like to have him tell us how it answers by this time."

After the added experience of four years, I can say that there are important advantages in the house-apiary referred to. In fact, I am more firmly decided than ever that the fundamental principles of the most successful system of management are comprehended in the main features of this plan. You remember that I "set my foot down" on this point at the time, and it is there as flat as ever today. While nearly all hands and minds of the bee-fraternity have been at work on the wintering problem, bringing about important developments on the line of cellars and sub-earth ventilators, a considerable proportion of my time, money, and midnight meditations have been expended in the effort to avoid the disadvantages, and appropriate the advantages, of the 14-hive house-apiary, with special reference to the wintering problem.

I have each year added improvements; each winter I have tested the new plan as far as developed, with nearly my whole number of colonies, but never following the same plan any two years. After these numerous modifications, the careless observer might not recognize in my present appliances and methods the original house-apiary; but the important principles are all there.

1. Economy of ground room in the apiary.
2. Economy of steps in handling.
3. Economy of chaff in packing.
4. And, most important, economy of the heat of the bees by bringing the colonies so close together that they keep each other warm. But,

WHY ECONOMIZE HEAT

so carefully while we hear of so many colonies dying from being "packed up too warm"?

Beg pardon, but I don't believe bees were ever packed too warm, if they had plenty of *fresh air*; and it is to enable us to give this air that we wish to economize heat as far as possible. If you will present your nose at the entrance of one of these closely packed colonies I think you will be convinced that something more than heat and moisture is escaping.

The fact, that from five to ten pounds of honey (but a small per cent of which is water) passes off through the air from a colony during winter confinement, tells the same story.

Does the science of ventilating a bee-hive differ so much, after all, from that of ventilating public buildings? In scientific discussions on the ventilation of buildings we do not hear very much about the injurious effects of moisture. We do not find the attics of our churches and schoolhouses packed with "absorbing materials." They tell us that poisonous impurities, carbonic acid, etc., are constantly being thrown into the air from every breathing thing, and that these poisons cause certain death to man, beast, or insect, unless carried away by the air.

We would not underestimate the importance of

complying with all the conditions necessary for reducing to the minimum the accumulation of this refuse matter, which seems to be the objective point of most efforts at present. But I think the lack of ventilation is a potent cause of over-consumption of stores, and consequent accumulation of fecal matter.

We have also reason to believe that, with perfect ventilation and a high temperature in the hive, which can be combined only by the house-apriary principle, a large per cent of the refuse matter will be discharged through the air that would otherwise clog the intestines. There are objections to the house-apriary as described in the article referred to. It takes an odd-sized frame, which is intolerable. The hives are immovable, and it is difficult to get all the bees out of a hive when desired. The bees and queen are liable to get into the wrong hive. The house has no floor, only the ground. As for bees getting out in the house, I do not consider that an objection, as I have had no such trouble. I would hardly advise any one now to build a house just like this.

The details of just what I would advise I will reserve until I have had a little more experience.

Before closing I wish to thank you kindly, Mr. Editor, for your kind words on page 90, and elsewhere, from time to time. Such recognitions are incentives to improvement.

10—OLIVER FOSTER, 250—256.

Mt. Vernon, Iowa, Mar. 4, 1886.

THE SOLAR WAX-EXTRACTOR, AND HOW TO MAKE IT.

FRIEND GREEN GIVES DIRECTIONS FOR ARRANGING ONE IN A SIMPLICITY HIVE.

VOU seem to be the natural friend of the small bee-keeper. Now, you can furnish this class with solar wax-extractors at a very moderate price. Most of your disciples have the Simplicity hive. To transform this into a wax-extractor, make a sash for glass that will fit on the top of a Simplicity. You can furnish these sashes either with or without glass. Furnish with them a sheet of perforated metal about 18 x 17, and a sheet of tin 14½ x 18½; also, if you like, a dripping-pan about 13 x 17.

The buyer of one of these outfits has only to place a Simplicity hive on a tight bottom-board; place the pan inside, blocking it up until its top is about three inches below the top of the hive; lay the sheet of perforated metal on this; put on the sash; put the sheet of tin in the cover for a reflector; hinge hive, sash, and cover together temporarily, and he has a wax-extractor which can be turned back into a hive at any time when so desired. On hot days no reflector will be needed, so that all it would be really necessary to buy would be the sash and sheet of perforated metal—any pan that will go inside of a hive answering the purpose.

I have no doubt that, if you will get up outfits of this kind, you will sell hundreds of them, make bee-keepers happy, and make a good thing out of it yourself. I would go into the business myself, only, as I said before, it would be useless to compete with your facilities. Even if I could make them as well and cheaply as you could, you could sell a great many more than I could, do more good, and make more money.

In use it is to be placed on the south side of a building, and the cover leaned against it at the proper angle. If much wax is to be melted, time will be saved by turning it a little, several times a day, so as to face the sun; also that, if any one wants to run the honey and wax into the honey-house, all he will have to do is to bore a hole through the corner of the case and run a trough from the tube in the tin pan, through into a receptacle in the honey-house. Where there is much honey in the comb to be melted, as where a large quantity of cappings is to be rendered, this is the better way, as the honey becomes overheated and injured by being left in the extractor long.

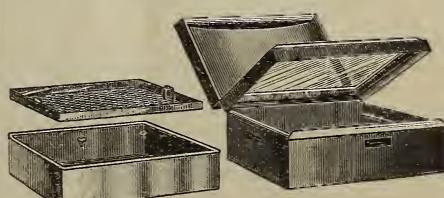
In regard to the use of a double-glass covering, some seem to think that its purpose is to "draw," "gather," or "attract" the heat of the sun, just as some persons say that a piece of metal or any thing of a dark color "draws the sun." This language, of course, is erroneous. A double glass attracts no more of the sun's rays than a single glass or no glass at all. The purpose of the double glass is to prevent the escape of the heat that is within the extractor.

It is a curious fact, that glass, while permitting luminous heat-rays, such as those in sunlight, to pass through it quite freely, is almost impervious to rays of heat radiating from any *dark* source. The radiant heat of the sun, passing through the glass of the solar extractor, is absorbed by the beeswax, and changed into sensible heat, in which form it can not escape by radiation the way it got in. It might be carried out by conduction, but glass is a very poor conductor. Dry air is one of the poorest of conductors. A sheet of dry air, inclosed between two sheets of glass, forms a very perfect non conductor. We might compare this arrangement to some kinds of traps. The heat of the sun finds its way in easily enough, but it can not get out again. A single sheet of glass will conduct the heat off a great deal more readily than two. In very hot weather I have made beeswax simply by placing the comb on a sloping board in the sun, without the aid of glass to confine the heat or reflectors to increase it, so I have no hesitation in saying that a single sheet of glass will do very well during most of the summer. A double-glass extractor, though, will melt wax faster, ordinarily, thus having a greater capacity, and it can be used at many times when a single-glass extractor would not work.

J. A. GREEN.

Dayton Ill., Feb. 9, 1886.

After the wax-extractor sent us by friend Green was received and tested, we turned it over to the foreman of our saw-room, and he shortly gave us one as shown in the drawing below.



SOLAR WAX-EXTRACTOR AS DEVISED [BY FRIEND GREEN.]

This wax-extractor is made exactly the size of the Simplicity hive. A pane of glass

is let into the rim, exactly like the rim that goes around an ordinary cover. This is hinged to the body of the machine. Another lid is also hinged to the one containing the glass. This latter is simply a Simplicity hive-cover, with a sheet of bright tin pushed into the inside. At the left of the engraving a tin tray is shown. This tin tray has a tube at the corner to carry off the melted wax. A pipe may be connected with it to run the melted wax into the inside of a building, if you wish. Inside of this tin tray is a shallower one, made of perforated zinc. This is to contain the bits of comb. A handle is attached to each end, for convenience in lifting it out, and it is prevented from going clear down inside of the tin tray by bits of tin. Now, then, how low can these machines be furnished? We can furnish them, all complete for shipment, for \$3.00; or with the above directions you can probably make one.

SUB-EARTH VENTILATION.

A DISCOURSE IN REGARD TO VENTILATING LARGE BEE-CELLARS.

If I were planning a perfect cellar for wintering bees, I think I would have it perfectly air-tight, except one place for the entrance of fresh air, and another for the exit of foul air, meaning, by "foul air," that which is not quite so pure as the open air. The air that entered should come through an underground passage, so deep and so long that the temperature would be just right for the bees, making allowance, if necessary, for the air being somewhat cooled by the cellar walls and ceiling. It should be capable of being kept perfectly dark. Now let us see what the difficulties are in the way of securing this ideal cellar, and how, if possible, we may overcome them. Suppose in our imaginary cellar we make a small hole in one wall. Will air pass in or out through this hole? If there be a large pipe to bring in air, and a small shaft to carry it out, then air will pass *out* of the hole in the wall. If, on the other hand, the entrance-pipe be small, and the exit-shaft large, then the air will pass *in* at the hole in the wall. If there be a number of such holes, in the latter case air will pass in them all. Precisely this condition exists in my house cellar. There are three six-inch stovepipes for the exit of air, and one four inch tube for entrance, being a provision for the exit of at least seven times as much air as can enter the entrance-tube. The result is, that instead of all the air coming in through the underground tube at 40° above zero, a large part, and probably much the larger part, comes in through the various cracks about the cellar, at a temperature varying with the weather, ranging from 45° above to sometimes nearly 40° below. As a result, I keep two coal fires constantly running to warm up this cold air. To make matters better, I must just reverse the present state of affairs, and have enough air come in through the sub-earth tube to balance all that can pass out through the exit-pipes and the cracks in the wall as well. I might close one or two of the exit-pipes, but I want to be sure of enough ventilation for the 216 colonies. A friend at my elbow suggests that I might stop the cracks in the wall; but to make an air-tight cellar is exceedingly difficult, if not impossible.

Thus far, I know my ground tolerably well; but now I begin to grope, and my only excuse for going on is, that I am anxious to find out from others just what I ought to do, and perhaps I can best do so by stating some points which I think I know, and making guesses at what I don't know.

As data, I give the following from a card of the Joliet Mound Co., of Joliet, Ill. The first column gives size of tile in inches, inside diameter; the second, the number of gallons of water it will carry per minute, at a grade of 3 ft. fall per 100 ft.; and the third, the price at the factory per 100 ft.

| | | |
|----|------|--------|
| 4 | 163 | \$1.50 |
| 6 | 450 | 2.50 |
| 8 | 923 | 4.00 |
| 10 | 1613 | 6.00 |

This table showed me how far I might get wrong by mere theory, for I had figured that the carrying capacity would be as the squares of the diameters, making the 8-inch tile carry four times as much as the 4-inch, but it will be seen that it is nearly six times. This makes me a little chary about theorizing about any part of it, and I should very much like to ask some one who *knows*, just what I need to do, to ventilate and warm by a sub-earth pipe, this 31×33-foot cellar. In thinking the matter over, it occurred to me that by using larger tile, and partly stopping the entrance, a much shorter tube would admit air at a given temperature, than by using the smaller tile. To find out how much difference stopping would make, I went down cellar and closed the entrance of my four-inch tube about one-half, first having taken the temperature with it fully open. After leaving the thermometer in it for half an hour, I found, very much to my surprise, that the rise was so little that I could not detect it with a common thermometer. I then replaced the thermometer in the tube, and plugged the tube up tight, and left it four or five hours. On taking it out, it was not so much as one degree higher than when the tube was wide open. So I learned little about the effect of partly closing tubes; but I did learn that, practically, 100 feet was as long as there was any use in having my four-inch pipe; also, that, at the depth it is laid (the man who dug it has just told me it was fully 4 feet deep), I can not expect to bring in air warmer than 44° at the beginning of winter, and 36° toward its close, always allowing for inaccuracy of thermometers. (Bro. Root, why don't you sell *tested* thermometers, even if they do cost more?) Here is one difficulty: The sub-earth air is colder in the latter part of winter, than at the first, and it ought to be just the other way, ought it not? I don't see how we can get over this difficulty. I suppose at this distance from the factory, tile will cost much more. My four-inch tile cost more than double; and in making any estimate we might figure on double prices. The cost of laying the tile varies, of course, with the ground to be dug. I think it cost me about 50 cents per rod, or 3 cents per foot. It is clear, that the tile should be laid deeper than 4 feet. I wonder how deep it should be laid to bring in air at 45° in the latter part of winter. I'm afraid it would have to be 5 or 6 feet deep, making the work cost perhaps 5 cents per foot. Doubling the price of tile as found in the list, this would make a four-inch tube cost per foot, for tile and work, 8 cents; an eight-inch tube 13 cts., and a ten-inch tube 17 cts. As an eight-inch tube carries six times as much as a four-inch tube, suppose we close the entrance of the eight-inch tube to about one-third its full size. That will allow twice

as much air to pass as the four-inch tube will carry; but as the inner surface of the eight-inch tube is double that of the four-inch, it has double the warming capacity; so with each tube 100 feet long. A double amount of air may be brought in at the same temperature through the eight-inch tube. It would be cheaper to lay one eight-inch tube at 13 cts. per ft., than to lay two four-inch tubes at 16 cts. Possibly, however, the two smaller drains might be the cheaper; but the larger one would have this decided advantage, that a large quantity of air could be flushed into the cellar at any time, even if not up to the desired temperature.

How would this plan do? Use large tile, perhaps ten-inch, laid so deep and so long that, at the beginning of winter, it would admit air about the right temperature; then every three or four weeks, as the ground became colder, close up more and more the entrance, thus keeping up or raising the temperature. Perhaps I have done enough loose guessing, and I shall be glad to be called to order by any one who will show where I am wrong, and at the same time show us what is right.

Referring to your remarks, Bro. Root, on page 169, I don't think it would be well to add any dampness to my cellar. I hardly see, either, the advantage of a heated reservoir. Would it not cost as much to heat the reservoir, as to heat the cellar direct? My three stoves will cost, in all, about \$16 for the winter. I fill them each morning and evening, and that is all the attention they have. C. C. MILLER.

Marengo, Ill., March 2, 1886.

Friend M., I am glad to see that you have gone into this matter so thoroughly. The rate at which the air passes through the sub-earth ventilator, I think, will have much to do with its temperature when it reaches the cellar. If a stiff breeze should pass through the four-inch tile when the air outside is below zero, it seems to me it could not be warmed, say 40° , in passing only 100 feet. The earth would be gradually frozen around the tile, commencing at the outer end. Of course, the depth would make a difference. Well, closing the opening in its inner end would, of course, make the current of air pass slower, and this might be graduated, probably, so that the ground would take the frost out of the air as fast as it passes through. In that case the temperature should not keep getting lower until the latter part of the winter. I think a large-sized pipe will be cheaper and better. The air from my underground reservoirs is quite warm and comfortable, even when the temperature is below zero outside. Now, when tile-factories are a good way off, and with thin flat stones easy of access, can not an underground passage be made with stones cheaper than with tile, and so as to carry in and warm a large volume of air? It seems to me there is not a question but that the heat of the earth may be so utilized as to warm buildings sufficiently to prove a very great saving of fuel. Since my warehouse is burned down, I am now obliged to build a barn. I want to build it in accordance with friend Terry's forthcoming new book; and I mean to have the stables, both for cows and horses, made so they won't freeze in any weather, and I suppose sub-earth ventilation will do it. Our poultry-men, especially

those who produce eggs in winter, ought to be interested in this matter, as well as those who winter bees. You see, this is a broad subject, and one of great moment to a large class of people besides bee-keepers.

THE CONGREGATING OF DRONES.

DO DRONES FLOCK TOGETHER IN LARGE NUMBERS?
AN INCIDENT THAT SEEMS TO PROVE THAT
THEY DO.

OME time in June, 1885, friend John Williams, who lives near here, called my attention to the fact that he thought drones were congregating, above a hill, about a mile east of our apiary. On the first favorable opportunity I went with him to the hill, and this is what we saw and heard.

As we approached the highest elevation, we could hear a loud humming, very much resembling bees when swarming high in the air. The most of them were too high in the air to be seen; but occasionally one would circle lower, and, by the peculiar humming which they made, we were pretty sure they were drones. If we threw a stone in the air, it would at once be surrounded; and as it fell to the ground they would dart after it and follow it to within fifteen or twenty feet of the ground. There seemed to be vast numbers of them, extending along the ridge of the hill for some distance, and they must have come for miles around.

Returning to the apiary I watched the drones as they flew from the hives, and nearly all of them flew toward the hill from which I had just returned. Now, I believe that drones congregate in large numbers, and the queen, attracted by their loud humming, flies among them and is fertilized. I do not know that there is any thing new in the above; but of one thing I am pretty sure, that there is no use trying to get queens purely mated every time, if there are drones of other races within five miles. Queen-breeders should be careful how they advertise "no black bees near here."

RETURNING SWARMS TO THE PARENT COLONY.

Our bees commenced swarming about May 25, 1885; and as the indications for a good honey season were not very good, we returned all but a few of the earliest swarms to the parent colony. By so doing, in a poor season we obtained a fair yield of honey (70 lbs. per colony), and kept them strong for winter. My experience has been, that swarms returned in this way work with the same energy as swarms hived in empty hives; and after experimenting pretty thoroughly in trying to prevent increase we have found no other plan that has proved to be so satisfactory as this. I am well aware that many would not succeed with this method, for the reason that, many times, swarms returned in this way are inclined to swarm again, therefore the novice would probably, after a few trials, give it up in disgust, and try some other plan to prevent increase. It should be remembered that, after returning such swarms, we have a powerful colony, and therefore they need an abundance of room. We usually remove two or three frames of brood from the center of the brood-nest, and supply their place with empty comb or frames of foundation. Great care should be taken, to see that every queen-cell is cut out; for if one is left, they will be pretty sure to swarm again. I know you will say, friend Root,

that they can build more cells. Yes, they can, and will sometimes; but, once get them at work again, and see to it that neither the queen nor bees get out of room, and they will stay and give us such a yield of surplus as will pay for all the trouble we have had with them.

O. G. RUSSELL.

Afton, Chenango Co., N. Y., Feb. 8, 1856.

Many thanks for the valuable facts you give, friend Russell. Something in regard to this matter has already appeared in our back volumes, but I believe we have never had any thing as straight and direct as the testimony you give. I have heard the drones humming in the air, just the way you mention, but I could not get a glimpse of them. What astonished me at the time was, that there seemed to be such a very great multitude of them; in fact, I could hardly conceive how there could be drones enough in several square miles to make such a roaring as I heard, and I believe you are right about it. This makes it an easy thing for queens to be fertilized quickly and surely, but it also makes it a difficult matter to get pure queens while there are bees in the woods, or in apiaries, even several miles away.—Returning swarms to the parent colony will doubtless work well where there is only a moderate yield of honey; but where swarming gets to be a mania, I think it would only complicate matters by making swarming incessant.

EGG-LAYING OF QUEENS.

SOMETHING FURTHER ON THE SUBJECT, BY FRIEND CHARLES DADANT.

IN answer to my article of Feb. 1, p. 95, Mr. Cook says that he doubts that animals drop eggs, "at just such a time, irrespective of surroundings."

Well, let him put a laying hen under a box for 24 hours, and he will see her unable to prevent her egg from dropping, although she would have preferred to lay it in her nest. If a hen is unable to keep her egg, how can a queen-bee, which, according to Mr. Frank Cheshire (*Bees and Bee-keeping*), lays, in 24 hours, twice and even four times her weight in eggs?

For at least half a century, some French bee-keepers, with straw hives, have been accustomed to make artificial swarms by drumming out part of the bees. In order to ascertain the presence of the queen in the swarm, they put it, for a few minutes, on a black cloth. The white eggs, which the queen, if present, has dropped on the cloth, are easily seen, and show whether the operation has succeeded. According to the theory of Mr. Cook, as accepted by the leading bee-keepers on both continents, the queen not only knows the sex of her eggs while laying, but she knows, also, that her sons will be larger than her daughters; she knows that the colony has no need of drones before the swarming season; and she is endowed with such presence of mind that she does not make any mistake — laying drone-eggs in large cells, and worker-eggs in narrow cells. Yet, according to Mr. Cheshire, the brain of the queen is small, as is also the brain of the drone, and consequently the queen is far from being as intelligent as the workers, whose brain is comparatively large, and which, by their building of comb, their gathering and storing of provisions, their care of the brood and of the hive, etc., show that this enlarging

of brain corresponds with an increase of intelligence. Yet this intelligence of the workers is not sufficient to enable them to discern a drone-larva from a worker-larva, since they make, sometimes, the blunder of trying to raise queens with drone-larvæ. Is it admissible, that, although less intelligent than the workers, the queen would know better the sex of her offspring? I think to be able to explain the whole process of this laying of the queens without resorting to imagination or the supernatural, by referring only to a natural law.

To keep every thing in its place; to perform every chemical change; to preserve the life of every being; to insure the perpetuity of every kind, nature uses a single force, or power — *attraction*. It is the same force which keeps the innumerable worlds of the universe in their relative positions to each other; which keeps the earth and the planets revolving around the sun, the moon around the earth, and prevents all the matter composing our planet from dispersing into space. It is the same force, also, which attracts the slim sprouts of a potato, forgotten in the cellar, toward the dim light of the window; the same force which attracts the rootlets of plants to the bits of manure scattered in the soil; the same which directs the anthers of some flowers to bend toward the pistil to spread on it their fecundating dust. It is the same force which, under the names of appetite, desire, love, instinct, etc., directs the animals toward the acts which keep them alive and perpetuate their kinds. All these acts are accomplished blindly by the animals. Nature does not take the trouble to tell the cow, "You will nurse your calf, to keep it alive and growing." Nature does not say to the calf, "You will suck and eat, to live and grow." She gave to the cow the blind desire of nursing her calf; and she gave to the calf the blind appetite for sucking and eating, and she remunerates both with a pleasure. For not only does nature use *attraction* to attain her aims, but she remunerates with a sense of pleasure the gratification of every desire. Such being the *universal and unique law* used by nature to direct the acts of all beings, let us see how it works with bees.

As soon as a queen experiences a desire to meet a drone, she goes out of the hive. She does not think, "I will have my spermatheca filled with spermatozoids, then I will use these spermatozoids, one after another, to change the sex of my eggs; for I know that, if not impregnated, they would hatch drones only, and drones are not able to do the work of the hive." Such would be her reasoning, if we were to adopt the theory of the free will of queens. To meet a drone the queen goes blindly, excited by her desire; and afterward she blindly impregnates her eggs, experiencing, also, the desire of their impregnation, and is remunerated with a pleasure. This act of fecundation being double, the desire ought to be double also. The desire for this impregnation is easily proved by the fact, that, in early spring, all the eggs which a queen lays are worker, or impregnated, deposited in narrow cells. The queen avoids the large cells given by the bee-keeper, who wants drones. As her eggs don't mature very fast, she takes time to select narrow cells. But later, when the eggs drop at the rate of one every ten or fifteen seconds, she is compelled to lay them as they come, not having time to hunt for small cells, in which she could more readily make the necessary motions to impregnate her eggs.

This desire also explains how a queen never com-

plains of having only narrow cells at her disposal. She doesn't care for large cells, and the race of bees would be doomed for want of drones if nature had not put a check to her desire to impregnate all her eggs. This check comes from the workers, who take care to prepare large and deep cells. If we refer to the same law of attraction, we shall be able to explain, also, this building of small and large cells.

The queen is but partly mother. She can lay eggs, but she can not nurse her offspring. On the other side, the workers are partly mothers also. They do not lay, but they nurse; even more, they suckle the young.

For at least forty years it has been known that the workers have two pairs of glands in their heads and one pair in their thorax. The anterior pair of glands of the head is a sent in the queens and in the drones. They are fully developed in the young, and atrophied in the old workers. It is in these glands that the milk, used by bees to nurse the young larvae, is secreted. Mr. F. Cheshire thinks, also (and, to my mind, justly), that the same milk is used to feed the queen and incite her to lay. The operating and subsequent obliteration of these glands correspond with the double aptitude of bees as nurses first, and as store-gatherers afterward. While young, they like to take care of the queen, and to nurse the larvae: when old, they are attached to the fields, and like to store provisions. When young, this devotion to the queen incites them to comply with her desire to have all narrow cells; and as long as she keeps pace with the building of the comb by filling the cells with eggs, no other than worker-comb is built. When old, the desire to store incites them to build store, or large cells; and if the harvest is abundant, or if the prolificness of the queen is equal to the rapidity of the building, or if the queen is missing, the influence of the old workers prevails, large cells are built, and in the height of the breeding season the queen is compelled to fill them with eggs.

Let us remark right here, that the same law applies to the human family. A young mother will gratify all the desires of her young children, regardless of cost, while a grandmother will be more careful about expenses. She will mend old clothes, and economize, to save or to acquire property. The drying of her breast, like the drying of the milk-glands of worker-bees, changes the aptitudes and the desires in both cases.

This theory has not just emerged from my mind. I explained it in some European papers about seventeen years ago, and I am confident that no other can explain as well this one of the mysteries of the bee-hive. Yet something remains unexplained. Is it the width or the depth of the drone-cells which prevents the queen from impregnating her eggs? There is a field open to the investigation of Mr. Ernest.

CHAS. DADANT.

Hamilton, Ill., March, 1886.

Friend D., I do not know but that we are all getting into deep water in this subject. I think I can accept most of your reasoning; but in regard to old bees not being able to feed larvae, if I remember correctly, when this was discussed some time ago somebody proved that old bees could care for the larvae and food, just as well as any, where they are obliged to. Perhaps somebody can point out where it was.

THE FIRM OF JANE MEEK & BROTHER.

A Serial Story in Ten Chapters.

BY REV. W. D. RALSTON.

CHAPTER IV.

THE DONATION PARTY.

A FEW families belonging to Rev. Mr. Meek's congregation lived about six miles south of his church, on what was called Crab-Apple Creek. There were not enough of them to form a church of their own; and as they lived so far from the church, and were not able to attend regularly, Mr. Meek often preached for them and their neighbors on Sabbath afternoons. Thus they had many pleasant and profitable meetings in their little red schoolhouse, and he finally succeeded in organizing and keeping up a real live Sabbath-school there. His labors for these people were much valued by them; and every winter they and a number of their neighbors made a donation visit to the parsonage. These were memorable days to the Meek children. Those honest farmers came in their large farm wagons, laden with all kinds of farm products, which filled Mr. Meek's cellar, pantry, and feed-bins, until the poor man was actually harrassed to find places in which to bestow his goods, and even meditated doing as the rich man in the parable did -pull these down and build greater. Usually these farmers were accompanied by their wives and children, who brought baskets well filled with provisions.

A table was set, reaching from one end of the dining-room to the other, on which were placed the contents of the baskets. The minister and family, although in their own home, were treated as guests, and placed at the head of the table, around which the others gathered, and due justice was done to the good things before them.

There was always abundance of talk and laughter, and all present seemed to enjoy the visit very much. On this occasion some one had brought a comb of nice honey. When it was passed around it turned the conversation on bees and honey. As Jane and Tommy now knew something about bees, they were interested and amused at what they heard.

Mrs. Cole passed the honey without taking any, saying, "I always liked the taste of honey, but I do not eat any, because I learned that, when the bees suck the honey from the flowers, they swallow it and carry it to their hives in their stomachs, and then they throw it up into their cells. I could not think of eating what had come out of a bee's stomach."

Mr. Meek replied, "Mrs. Cole, you are a little mistaken. Bees do not carry honey in their stomachs, but they are provided with a little sack for that purpose. You know the little animal we call a ground-squirrel, or chipmuck, has a little sack in each cheek, in which it carries grain and nuts to its hole; so the bee has a little sack, not in its cheek, but in its throat, in which it carries honey to its hive. You know that, in all animals, there is a pipe that extends from the mouth to the stomach. In the worker-bee this pipe is really a little sack, called the honey-sack. We might almost call it an extension of the mouth. The stomach is beyond, and no honey passes from this sack into its stomach except what is needed for its food. If we say the bee car-

ries the honey to the hive in the back part of its mouth, it would be nearer the truth than to say in its stomach."

Mrs. Cole asked, "Is it nice to eat what comes from a bee's mouth?"

Mr. Cole said, "My wife uses sugar, molasses, and the different kinds of syrups sold in the stores, thinking these cleaner than honey. I have been south, and have visited sugar-manufactories. If I should go into details of what I have seen in manufacturing sugar and molasses, I guess she would conclude that the cleanest sweet we have is what we get from the bee-hive."

"Yes," said Mr. Meek, "not only the cleanest, but the purest and best. Molasses and syrups in these days are often made from corn, out of a substance called glucose; or, at least, glucose is frequently mixed with these. All such syrups are demanded by the people, clear and nice looking. To make them so they are treated with acids and various drugs, which tend to make them unhealthful as food; or, at least, I have been told so by physicians. How different with honey! Nature, which is only another name for God, forms the honey in the cells of the flower. The little bee, a nice cleanly insect, sucks it from the flower, and carries it in the back part of its mouth to its hive. I have read that learned men, by many experiments, have decided that the honey is not changed in the least by being thus carried. It is just the same in the hive as in the flower, only the heat of the hive boils it down, as it were, and makes it thicker. I think nice comb honey like this is the purest and cleanest sweet you can obtain. We might say it is just as it comes from the hand of God himself."

"How about the wax?" asked one in the company; "is it gathered from the buds of trees?"

"No," said Mr. Meek. "Bees do obtain a substance from buds of trees, but it is not wax. It is called propolis, and it is a kind of pitch, or bee-glue, and is used to glue up crevices in their hives. Wax comes from the bodies of the bees. It is a kind of bee-sweat, or bee-fat. On the back part of the bees' bodies are five rings, and the wax comes out at the joints of these rings in what are called wax scales. When bees secrete wax they eat much more honey than at other times."

Here Mr. Jones, an Irishman, said: "Sure an' bees must be curious lads, if they know how to do all these things. Faith, an' I believe I would keep bees if I knew where to buy some. Do you think, Mr. Meek, it would cost much to buy a couple, so I could get a start?"

Mr. Meek replied, "I suppose you mean a couple of colonies of bees."

"No," said Mr. Jones, "I mean a couple of bees. A cock-bee, and a hen-bee, or whatever you may call them."

A roar of laughter greeted this remark.

Mr. Jones looked around inquiringly, as though he could not understand why they laughed. Mr. Meek explained that his idea of starting out in the bee-business, with only two bees, was rather funny.

"Why should that tickle you?" said Mr. Jones. "You all admire my flock of White Leghorn chickens, and I began that flock with just a single pair—a cock and a hen, and now look at them. Why, this fall I had over two hundred—all birds of a feather. Why can I not begin with a couple of bees?"

"Bees are quite different from chickens," said Mr.

Meek. "They will not live and prosper, unless in a hive, and that must contain a queen-bee and several thousand workers."

For some time they joked Mr. Jones about his cock-bee and hen-bee, and then Mr. Smith told a joke about one of his neighbors, an Irishman who had recently come to this country, and bought a small farm near him. One hot day, said Irishman was plowing his potatoes with a quiet, gentle old mare. In one corner of his field were some hazel-bushes into which he drove the animal, when all at once she began to prance and kick, and, turning around, rushed across the field as though some terrible thing were after her. Jerry manfully held to the lines and plow, and finally quieted the animal, but not until his shouting at her to stop had brought his wife to the field to learn what was the matter. Jerry asked his wife to hold the lines while he went to the hazel-bush to investigate the cause of the runaway. He came back with the news that there was a nest of bees in there on a little bush.

"Now, Peggy," says he, "if you will bring me the little box that is by the well I will put them into it, and they will make us honey."

Peggy returned with the box, and Jerry went cautiously into the brush; but he soon came out as rapidly as his old mare had done; and from the way he flung his arms around, it appeared as though he had a dozen arms at least. In telling Mr. Smith about it afterward, Jerry said, "I was sure I was killed; about fifty of the bees give me a dab, and each one raised a lump as large as a walnut."

Mr. Smith said, "Probably they were not bees at all."

Jerry asked what bees looked like.

Mr. Smith said, "Bees are about the size of those green-headed horse-flies you see about your team; they are brown, and some are yellow."

"Well, then," said Jerry, "those of mine were no bees at all, for they were black, had bald faces, and were as poisonous as a rattlesnake."

The company at the table laughed heartily at this, for all knew that Jerry had been trying to hive a nest of white-faced hornets.

Mr. Smith continued, "Poor Jerry had nothing to laugh at. The stings made him so sick he had to quit work, and was in bed most of the afternoon. His face swelled until both eyes were almost closed. There is one thing about bee-keeping I can not understand. Men who keep many colonies of bees will work among them day after day. I do not think a person can work with them without receiving some stings. A single sting will lay me aside from work. How can they stand it?"

Mr. Meek replied, "The pain and swelling caused by a sting do not come from the wound, but from the poison left in the wound by the sting. Our systems will become accustomed to a poison, so that it ceases to affect us. Tobacco is a poison. When a person begins its use, it sickens him. He experiences evil effects from its use; but by and by his system becomes accustomed to the poison, and these effects no longer follow its use. In like manner, after receiving stings repeatedly the bee-keeper's system is no longer affected by the poison as at the first. He does not experience the same pain from a sting, nor is it usually followed by swelling."

Mr. McMillen, a native of Scotland, next told the company about the wild bees of his native land.

He said the bumble-bees in Scotland are different from the bumble-bees in this country, in that their nests contain much more honey. In his boyhood he had spent many years herding sheep and cattle on the hills, and had found and robbed many nests of these bees. He claimed that he learned to tell a bee laden with honey, from one with an empty honey-sack, from the sound made as it flew by. When a laden bee passed him he followed it to its nest, if he could. He then marked the place so he could find it again. These nests were left until autumn, and, when well stored with honey, a number of herd-boys would go together some bright moonlight night, visit all the nests, rob them, and share the honey. He said, "I have been stung in a most terrible manner on those nights."

Mr. Meek asked, "Would you receive enough honey to pay for the stings?"

He replied "We were all poor boys, receiving only very plain food—no sweets at all, and we felt richly repaid. Each nest contained quite a nice mess of honey. Of course it was nothing like the honey we have just been eating; but I assure you it tasted much better to me then than this honey does now. After a night's robbing of nests we had honey for several days, which made quite an addition to the scanty dinners we carried to the hills. Each shepherd boy was accompanied by a dog, with which he shared his dinner. I remember my dog was very fond of this honey."

The conversation turned to other things, the meal was finished, and the children were led by Jane and Tommy to the barn, where they played many merry games until the friends departed for their homes.

To be continued May 1st.

REPORT FROM MRS. JENNIE CULP.

ALSO SOMETHING ABOUT WOMEN'S WANTS AND WOMEN'S WORK.

THE March No. of GLEANINGS is just received and contents examined. I find two things in it especially interesting to me just now. First is the statement, "Examine the bees, and, if needing stores, feed them or give sealed honey." Now, suppose you have no sealed honey (which is the case with me for the first time since I have been in the business). Would you give them sugar syrup, candy, or more maple sugar in the cake? Circumstances over which I had no control prevented my feeding as much as was necessary last fall to carry them through until fruit-bloom, and I find some of them are getting short this early. In answer, do not refer me to the A B C, for I sent that to a dear friend 50 miles distant, last year, and lent Prof. Cook's Manual to another friend in Delaware, Ohio, and Langstroth and Quinby are also on the wing; and, by the way, do not forget to send me another copy of the A B C. I do not feel as if I could "keep house" successfully without it. I have had four already; but somehow they do not stay with me.

THE PICTURE OF THE WHEELBARROW.

It just strikes my fancy. I certainly must have one, and a lawn-mower too, if a lady can use it. I will let you into the secret why I want them, Bro. Rot. I have a kind of mania for having things look tidy; and having depended on "uncles and

cousins" for four years, my little stock of patience is well nigh exhausted. When I ask to have my yard mowed, I am invariably met with the reply, "Oh! it does not need it yet;" and if I insist on its being done, telling them I am willing to pay well for having it done now, they just act as if—"well, it does not need it a bit, but I suppose I shall have to humor you." Now, that takes all the vim out of me, and, with your assistance in furnishing me tools, I will try "paddling my own canoe."

Last fall I wanted my chaff hive remodeled so as not to have to unpack in the spring. I got the idea how it could be done by using your chaff hives, when I visited you (and, by the way, I visited ten apiaries in that little trip; yours was the banner apiary. Mine the second—not in numbers, but in uniformity of hive and neatness. I have been feasting on the pleasure of that little trip ever since). I sent for a carpenter to come and do the work for me, telling what I wanted done; he sent back word he could not come. Not willing to be put off, I then went myself; he not being at home, I inquired of the "gude wife" the reason. "Oh!" said she, "he said it was just one of your whims, and he would not humor you. The hives your husband made are good enough for anybody, without any change."

I tell you that "riled" me, to think he would not even come and look at my proposed improvement, but set it down as a whim, simply because it was a woman's idea.

Well, the result of it was, I vowed a vow, and it was this: That if the Lord would give me the strength I would show some of the opposite sex that a woman can "paddle her own canoe" pretty successfully, without their assistance. Was that wicked? The strength is coming, and, one by one, I am gathering up the tools for the work. I have one hive fixed, and the remaining 55 will (Providence permitting) follow suit as soon as the weather permits.

Now, Mr. Editor, Ernest, and friends generally, for fear you will think me masculine in writing this way, I will tell you I am a little woman, not weighing over 100 lbs.; and if there is any thing I dislike, it is a masculine looking and acting woman. This I am trying to guard against.

Mrs. Francis E. Willard, President of the Women's Christian Temperance Union, says: "There is not one thing that men ought to do; there is not one thing that ought to be done, which a woman ought not to be encouraged to do, if she has the capacity to do it," and that is my sentiment exactly.

I have been slow in sending my report for 1885, not knowing in just what department to place myself. I am not discouraged, although my honey crop was an entire failure as far as surplus is concerned.

If what our president said at the bee-keepers' convention at the Ohio State Fair be true (he thought it was the fault of the bee-keepers if they failed to get a crop of honey), then you will have to put me down as a failure. But with due respect to him and his opinion, I must beg leave to differ with him. I think I am prone to be diligent in business, and left nothing undone to secure a crop of honey. The long-continued drought of the summer and fall before, and the very severe winter following, destroyed the white clover, from which we get our principal crop in this locality.

REPORT FOR 1885.

Packed in chaff hives, 47 colonies, fall of 1884, all well supplied with first-class white-clover honey. Spring of 1885, all booming with bees, excepting one colony, which died. I considered that quite a success when there was such a general mortality among the bees that winter; yet no honey came of any account; at least, not enough to winter them without the aid of sugar. Wherein have I failed, if the fault is in the bee-keeper? I put into winter quarters 47 colonies, fall of 1885; two weeks ago they were all alive, and had a good fly; but for the first time since being engaged in the business, I await the outcome with fear and trembling.

Is it true, the Ohio bee-keepers have had their convention in the city of Columbus, and I have missed attending? I certainly should have been there had I known of it. Also, what has become of Mrs. C.? Did she get her situation? Is she selling honey for some one with that mule team, wrapping oranges down south, or feeding ducks and chickens somewhere on the line between here? I have been real uneasy about her ever since I saw her advertisement, for fear that she, with her overstock of ambition, would finally land in the lunatic asylum. I am told here in the Ohio L. A. there are more farmers' wives than any other class of women; and I can account for it in no other way than in this: We are very ambitious, as a class, and we take too little time for recreation; consequently our ambition runs away with our strength, and we break down nervously. I feel condemned when I think of her, that I did not write and tell she needed *rest*, absolute *rest*, worse than she needed any thing else in this world, judging from her writings.

MRS. JENNIE CULP.

Hilliard, Ohio, Mar. 10, 1886.

Mr good friend Mrs. Culp, I glory in your ambition and energy. The wheelbarrow you speak of is exactly the thing for a woman; but I notice in your order that you mention the large size. We do not dare disobey orders, but I wondered why you chose the large one when the small one seems so particularly designed for women, especially for small women like yourself.—I agree with you, that it is your privilege to have as many whims as you please, providing you pay for them, as we know you of course do; and I want to say, for your encouragement, that it is not women only who have been treated as you have been, but I often find men who are employed here on our grounds who refuse to do what I order them to do—or, at least, won't do it without a controversy, because they think it is one of my whims, even when I am perfectly at home in the matter, and they don't know any thing about it at all. I suppose there are extremes both ways; but I think a mechanic not only stands in his own light, but is a little out of his head, when he objects to doing what he is paid for doing, because, from his standpoint, it looks like somebody's whim.—In regard to rest, I do not believe I quite agree with you, my good friend. May be farmers' wives get to the asylum because they are held by force of circumstances down to a sort of work that is to them drudgery; but I think these same women would get mental health and happiness by a change of work that might require more physical exertion than what they have been having. I, too, am

small for one of my sex, and people talk to me continually about rest—yes, doctors too; but they are mistaken. I know perfectly well what kind of rest I need. A few days ago, after I had been reading letters longer than I ought to have done, I felt as if I were all coming to pieces, and as though my last days were near at hand. I took a brisk walk in the open air, but it did not seem to do a bit of good. But I found something that did cure me perfectly, and in less than half an hour too. What do you suppose it was? Why, I went and got a potato-fork that is just to my notion, in weight and make, and then I went out into the garden where the new agriculture is just beginning to "bud and blossom," and I spaded the dirt for half an hour. By that time I felt perfectly well, full of spirits, ready to fight (in any good cause), or jump over a picket fence. Do you know why? Why, I simply needed muscular exercise, coupled with some kind of work that my heart was in. The sight of my beautifully growing cabbages, lettuce, radishes, etc., and the thought of what that garden is going to be this spring and summer, gave enjoyment in the exercise, and made me well, when I was ready to take up the duties of the office until I was ready to take some more of the same kind of "rest."

EGG-LAYING OF QUEENS.

FRIEND HAYHURST GIVES US SOME MORE PUZZLING FACTS.

I AM glad to see this subject again brought up. Some time since I ventured to say something in favor of the Wagner theory, but our worthy editor laughed at me so that I thought it hardly safe to say any thing further; but with such a brave leader as Chas. Dadant, I believe I will venture a few suggestions.

On page 14, Prof. Cook says: "The fact that worker-eggs are often laid in cells which are hardly more than commenced; . . . the fact that impregnated eggs are laid in large queen-cells." Are these facts? It is true, that, when comb-building is in progress, the queens will sometimes lay eggs along the edges in cells scarcely begun; but I have seen no evidence that these eggs are ever developed; indeed, I have learned to my cost that eggs laid in cells not over one-eighth of an inch deep will not produce *queens*. I stock my cell-building colonies with eggs laid in newly drawn-out foundation, and have repeatedly failed to get queens from the very shallow cells, and I ascribe the failure to eggs not being impregnated; so that now I do not use combs for this purpose in which the cells are less than one-fourth of an inch deep.

It is not to be denied, that the queens generally deposit the eggs in the queen-cells when the bees are preparing to swarm; but I have frequently noticed, when examining colonies in this condition, that the unoccupied queen-cells have their opening reduced to about the worker size; these are afterward enlarged to accommodate the growing larvae. One comb will often exhibit a number of cells in the various stages of growth, from those not yet tenanted to those from which the young queens are nearly ready to hatch.

The mother-wasp, referred to by Prof. Cook, has the opportunity of enlarging or reducing the size

of the opening of the cells in which she deposits her eggs. Is it not probable that a careful observation of all of her work will develop the fact that she does this?

Another strong point in favor of our theory is the fact mentioned by me in the article heretofore referred to; namely, that bees that have nothing but drone-combs for their brood-nest will reduce the size of the openings of the cells to that of worker-comb by building a rim around the edges. Why do they do this, if the size of the cell has no effect on the sex of the egg? I had a case of this kind come under my notice last summer. Having a good young queen from which I wished to obtain some drones, I gave her a full sheet of drone-comb in the center of her brood-nest; but the workers (the scamps!) concluding that it was not good economy to raise drones at that particular time, built rims around the edges of the cells, and raised quite a lot of workers, much to my disappointment. I have a great respect for the intelligence and reasoning powers of the queen, and I am not willing to admit that she is merely an automaton in this matter. I have no doubt that she knows just what she is about when depositing her eggs in the various kinds of cells; but it appears to me that the weight of evidence is in favor of the proposition that external mechanical means decide the sex of the eggs, instead of the accurate manipulation of internal muscles, which in higher animals are involuntary in their action.

E. M. HAYHURST.

Kansas City, Mo., March 8, 1886.

Thanks, friend H., for the additional light you throw on this strange subject; and, by the way, the point you make is a good illustration of how very faulty our reasoning may be, even when we think it is very clear and plain. I have seen queens lay in the foundation, where the cells were very shallow and had just been started, and I took it for granted, as a matter of course, that she knew what she was about, and that worker-brood would be the result of this egg-laying. But when you pin me right down to it, I have to confess I do not know whether those eggs ever produced worker-bees or not. We will try to have that matter determined this summer. I have often seen drone-comb drawn out with a ring of wax, as you mention, where the bees wanted to raise worker-brood in the drone-comb. Now, I shall claim a little on my theory right here. It was the bees, of course, that put the ring of wax around the drone-cells, and, therefore, it was the bees that decided whether drones or workers should be raised. Now, why isn't it the bees all the while, and not the queen that determines the sex?

HOW TO EAT EXTRACTED HONEY.

HOW TO PUT THE CORKS IN THE MUTH JARS.

WE all know that we can not taste honey in our stomach; it is while it is in the mouth that we taste it, and Prof. Cook has truthfully said that the point of the tongue is the organ which appreciates it in the highest degree. When you spread honey on bread, I do not know of more than one way to eat it. If you like it "clear," just try it this way: Take a knife or spoon and just dip the point in the honey, then

"lap" it off, using the tip of your tongue; repeat as often as you like, all the while chewing the honey, and rolling it as a sweet morsel under your tongue. Not long ago two boys bought a pound of honey at our store, and after warming it at the stove they actually drank it.

PUTTING CORKS INTO BOTTLES.

How do you put the corks in the Muth honey-jars? I have never seen it done, and don't know what is the best way. At first I tried putting them in with a hammer, but I soon found that jarred out a fine dust from the cork, which fell on the honey. I then made a press, which I am still using. Take a hard-wood board, about 6 x 10 inches, for a base, and a lever of hard wood about 1 x 1½ x 16. Connect the lever to the base by four or six strands of heavy wire, making a loose joint near the lever. The lever and base should be just as far apart as the bottle is high. In sealing the tops, do not use pure beeswax, but take 1 lb. of beeswax and 2 lbs. of rosin; it is much better, and a great deal cheaper. Use it warm, but not hot.

C. W. COSTELLOW.

Waterboro, Me., Feb. 20, 1888.

Your method of tasting honey "clear" is very similar to the way we test samples of honey sent to this office. I grant, that, to get the full benefit of the delicate flavors, we must taste the honey in the way you describe. A good many small vials are mailed here for the opinion of the editor of GLEANINGS. Running the point of his penknife down the neck of the vial, he withdraws the blade, and, with its crystal drop adhering, transfers it to the end of his tongue. If I happen to be present at the time, I sample it in like manner. It is quite essential that one or more should express their opinion upon the honey, as what would be a disagreeable twang to one might be a pleasant flavor to another. In general, however, the opinion of one or more will be found to agree; and if there is an unpleasant flavor, as of fall flowers, it is pretty sure to make itself manifest.—You ask how we insert the corks of the Muth jars. If you will turn to page 846, last year, you will see a cork-presser there illustrated and described, which we use in bottling honey. Having reduced in size the cork by means of this little implement, we then force the cork into the neck of the bottle with the palm of the hand. From your description I had the engraver make a diagram like the following.



A DEVICE FOR PUTTING CORKS INTO BOTTLES.

and the plan upon which it works will be readily apparent, I think. It is shown as pressing the cork into a Muth jar, the cork being just below the lever. The whole of this lever is not shown, and should be of such a length as to produce a very considerable pressure upon the cork when the hand

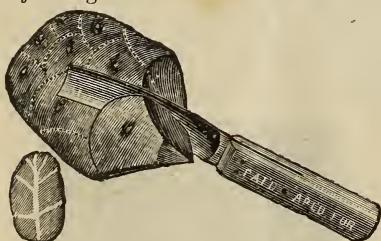
is exerted on the extreme end. Though friend C. does not say so, it occurred to me that he probably had his chain long enough so that there would be a little surplus, or its entire length as long as the tallest jar. By means of the hook in the board, and the separate links, the chain can be hitched so as to be adapted to any desired height of bottle. The same principle can be tried by placing a jar in a suitable position upon a bench. Next nail a cleat at the proper height in the siding of the work-shop over the bench, and then with a suitable lever (one end of which is placed under the cleat) the cork can be pressed into the bottle. For different heights of bottles, cleats can be nailed at various elevations. Perhaps the latter plan would be found preferable by reason of the greater stability.

ERNEST.

A KNIFE FOR CUTTING SEED POTATOES.

SOMETHING ON THE PLAN OF TERRY'S ONE-EYE SYSTEM.

VERY likely many of the friends tested Terry's system of cutting his potatoes to one eye last season. The advantages are, briefly, that we are by this means enabled to have one good strong stalk in every place, and no more. If you let ten or twelve stalks of corn grow in a hill, you certainly would not get a crop of nice ears. Where you plant a whole potato, and the whole of the eyes grow, you get a lot of small potatoes, just as you would have a lot of small ears of corn. Well, when we have got our potatoes so as to have one eye in a piece, we want as much potato around this eye as we can have; that is, we want to divide up the potato in such a manner as to have the eyes all separate, and a chunk of potato around each eye. If there are too many eyes in the potato to give each one this good chunk, select the best of them, and throw the rest away. To do this to advantage, we want medium or large potatoes. We also want the knife figured below, to cut it just right.



HUMPHREY BROTHERS' IMPROVED POTATO-KNIFE.

The saving in seed is quite an item. But our friends should remember that this plan of potato-growing requires good soil. If you take away the potato that gives the young plant nutriment, there must be rich ground or manure to take its place as soon as the young plant has used up the supply of food that starts it. We can furnish these potato-knives for an even 25 cts., packed in a neat little box, with printed instructions. If wanted by mail, add 3 cts. each extra.

CONFINING THE HEAT OF BEES IN THE HIVE.

IS IT NECESSARY TO REDUCE THE SIZE OF THE HIVE TO THE SIZE OF THE CLUSTER FOR WINTER?

For late years, many seem to suppose that it is necessary to confine the bees on as few frames as possible during winter for their safe wintering, basing said supposition on the idea that what is needed is the confining of the heat from the bees in as small a compass as possible; reasoning from this, that the cluster of bees will be kept warm. The line of argument generally presented is, that ventilation, upper absorbents, a vacant space above and around the bees, etc., ventilates the bees to death, on the principle that warm air seeks the top of a room, and that, unless held there by a tight ceiling, the room will not become nearly so warm as it might otherwise do. Now, while there is reason in this, regarding the room, the same can not be fully applied to the bee-hive, else many colonies of bees would die which now live. Who does not remember, in back volumes of GLEANINGS, how often it has been given that the only colony surviving a hard winter in a large apiary would be one in an old box hive, which was split from bottom to top, so the snow could blow in on to the bees? or that the colony which lived was the one the owner had overlooked and left all the surplus receptacles on, the same as used in the summer? According to the views expressed by some, these colonies should have died, and those carefully packed, contracted hives should have preserved their bees alive. But the facts in bee-keeping often put fine-spun theories to flight. I have often noticed that in box-hive apiaries the best colonies of bees in the spring would be those in a tall or large hive, especially if the tall hive had stores enough in it to crowd the bees down to the bottom-board, and keep them near it all winter; yet, according to late theories, these colonies should have died or been the poorest. Here the bees were at the bottom, while, if the late theories are correct, the heat would have been at the top.

Years ago, when I was a boy, father used to put pails on his box hives in the fall, after he had taken the honey-boxes off. These pails were simply placed on the hive, and the holes leadin through the top, with no covering of any kind over them; yet such colonies always wintered well. According to theory, the heat should have been in these pails, and not about the bees below; but I often found, by looking in them on moderate days, that nothing of the kind was there; but instead, the pails were full of frost, that did not melt until the weather became warm enough to melt it from the outside temperature. Again, I once cut a bee-tree, the combs of which showed that bees had lived in them for years. These combs were six feet long, but the bees had built and filled them with honey the first year, for brood had not been reared in the upper half of them, so that during the winter they had always had three feet of air-space above them, yet they did not die. Why was this, if there is truth in this small air-tight-hive principle? Well, I will try very briefly to explain my ideas regarding the matter.

A LIVING HIVE.

If we hive a natural swarm of bees in a large box, and closely watch them work, we find that they

suspend themselves from the top in a compact form, appearing like an inverted cone, which, to all appearances, is nearly motionless, so that it will appear as if the bees were idle; while the fact is, that these apparently idle bees are really the hive proper, and, inside this, active work is going on, building comb, etc. This is easily seen by passing a wire suddenly through the cluster horizontally, and letting the lower half drop. Outside this living hive, or crust of bees, the temperature is often not more than 50°, while just inside they are working wax nicely with from 90 to 95°, as I found last June, by careful tests with my thermometer. It would be interesting to follow this living hive further, as it expands until it finally touches the hive; how the combs inside grow, etc., but space forbids, so I will simply note the fact that they will fill the hive unless it is very large, or the supply of honey fails too early. Now, as cool weather comes on and storage ceases, this living hive contracts, instead of expanding, thus keeping the heat inside its walls to a sufficient extent for the prosperity of the colony. As it becomes extremely cold, the walls of the living hive become more condensed, until the larger part of the bees are engaged in forming this hive; still, I have yet to see a colony which does not have an active force of bees in the center of this living hive, ready to push their way out for an attack, if the box holding the cluster is roughly disturbed. It takes some time for these crust bees to get lively enough to fly; but the inside force can do so in a second, in any colony I ever experimented with, thus showing that the material inclosing this living hive had little to do with the heat of the cluster, that being controlled by the walls of the living hive. This living hive is all the while throwing off moisture; and if the box inclosing them is of such shape that this moisture will not collect about the bees, they remain dry, healthy, and nice. This is the reason why all kinds of packing are employed to advantage, in my opinion, and why it was that A. I. Root proposed to winter bees in a felt hat not many years ago. Instances have been given where colonies of bees have been wintered successfully in a large hive containing less than one-eighth of the comb they should when filled; in fact, so little comb that the bees covered all of said comb except the outer edge all winter. But I will stop short, and close, as this article is too long already.

Borodino, N. Y.

G. M. DOOLITTLE.

Friend D., while J. A. Green and others have argued strongly that bees will winter all right when sealed up tight, even in a glass bottle, you are taking the ground that they will winter all right without any air-tight inclosure about them at all, if I understand you correctly. Well, perhaps it is a good idea to consider both extremes, and both extremes have been defended in our back volumes. I confess I have been greatly puzzled to see bees so many times winter splendidly when they were about as badly fixed, according to the rules laid down in the books, as they could be; and at other times they do not winter at all, even when they are fixed in the very best shape. I want to take exception to one point you make; that is, that there are always live bees ready to make an attack when the outer crust is rudely broken. I have several times pulled frames out of the hive, thinking the bees were dead because they seemed so motion-

less; and if I recollect aright, they were all tied up in hard knots, even to the very center of the cluster, and it took them some little time to wake up and get ready to sting. Where brood-rearing is going on in the middle of the winter or spring, of course they must be stirring actively. And while I think of it, I believe these colonies so knotted up in the spring had no brood, and possibly their numbers were so small their only resource to keep from freezing was to knot themselves up in this manner until the weather moderated. I have seen them thus in the fall, in the winter, and in the spring; but I believe very strong colonies usually have a warm place where bees can go on with the housework, even during zero temperature.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

HAVE THE BEES THE POWER TO CONVERT WORKER-EGGS AND SMALL LARVÆ INTO DRONE-LARVÆ?

SOME time between the 15th and 20th of October last I sold five queens. Two of them went two days before the others. In due time I looked for queen-cells, and, to my surprise, I found drones capped over, and hundreds more nearly ready to cap, these drones being mixed all through the worker-brood and in worker-comb, with a goodly number of queen-cells. Hive No. 2 was examined, and found in the same condition; No. 3 the same; Nos. 4 and 5 the same. If the size of cell has any thing to do with the fertility of the eggs, how does it happen that, after removing the queen, the bees should convert worker larvae and eggs into drone-bees? The eggs and youngest larvae only were drones. Now, this happened in five different hives. The combs were built on fdn. bought of A. I. Root. I fancy I hear you saying, "Drone-layer," "fertile worker," or something of that sort; but I wish to say, "Not so;" this brood was in the hives at the time of removing the queens, and young workers were hatching all around it. Her majesty reigns supreme when present, I am willing to admit, but it seems to me the bees have something to do with it in her absence. Each colony reared a fine queen; but whether they were fertilized, I can not say; but I have lots of drones, any way. I would add, these drones are smaller than those reared in natural cells.

J. E. HOLE.

Ripleyville, Huron Co., Ohio.

Friend H., if you will examine our back volumes you will find this matter has been discussed a great deal. While many of the friends declare positively they have absolute proof that the worker-bees can thus change the sex of eggs or small larvae, Prof. Cook and others declare it to be an impossibility. Prof. McLain, at the convention in Detroit, last fall, remarked as follows in regard to it, as nearly as I can recollect. He said that, although he had not succeeded in proving it to his satisfaction, Prof. Wylie said, when the matter was referred to him, that he had not a doubt but that the bees might do it. This has nothing to do with the question you refer to between Prof. Cook and friend Dadant: for the above was managed by the bees after the queen was taken away.

SAWDUST PACKING, VERSUS OTHER PACKING.
Bees that were fed and packed in chaff or like protection are wintering nicely in this locality. But those that were left on summer stands, unprepared for such weather as we have been having, have perished. I went into winter quarters with 65, all on summer stands.

I have been using sawdust for packing, for four years; also chaff and dry leaves; but I should give my preference to dry sawdust. I should prefer the chaff hive stuffed with dry sawdust, also some dry sawdust next to the bees on top, to hold the heat. I have been in the habit of leaning a board over the entrances when a cold wind is blowing directly against the front of the hive, and moving it as soon as it moderates or changes its course.

Moons, O., Jan. 27, 1886. LEWIS HAINES.

HORSE POWER PREFERABLE TO STEAM FOR CUTTING UP HIVE STUFF.

I have a one-horse tread power to saw stuff for hives and boxes, and can saw two-inch plank as easily as one could wish. It is pleasant work to make hives now, and I think it better than a small engine. It costs less, and almost every bee-keeper has a horse, so the expense of running it would be comparatively nothing. It will thrash, saw wood, and pump. I think many of the friends would like them better than an engine, as there is no danger of fire. The Fearless, I think, is the best.

Amity, Orleans Co., N. Y. J. W. UTTER.

Friend D., please tell us where these horse-powers can be bought, and what they cost.

BROOD WITH THEIR HEADS AT THE BOTTOM OF THE CELLS.

I helped a neighbor take the honey from a box hive; and as I had a queenless colony I saved the queen and introduced her. Afterward I found some capped brood in the corner of the box hive. The heads were at the bottom of the cells, instead of being against the cappings. Would you remove the queen? Is she worthless or not?

CHAS. C. SCHWOB.

Moundsville, W. Va., Feb. 12, 1886.

Friend S., I have never before heard of such a thing as bees with their heads toward the bottom of the cells. If there is no mistake about it, it is something I don't understand. I would not discard any queen until I had tested her fairly.

HOW TO DISPOSE OF DRONE-EGGS, ETC.

Sometimes I find a frame of drone-comb, used in upper story for extracting, full of eggs. What is the quickest and easiest way to destroy them?

How much sulphur to a given area is sufficient to destroy moth larvae? I am afraid of using too much, and injuring the honey. I didn't use any sulphur last year, and got along all right; but perhaps I was running a risk.

Is a room that is bee-proof also moth-proof?

Feb. 17, 1886.

E. H. M.

There are several ways of destroying drone-larvae — washing them out of the way with a fountain pump; sprinkling salt on them; standing the combs in the honey-house until the larvae die, etc. The A B C book gives full directions for fumigating combs. Where we use Italian bees, there is not very much need of fumigating the honey; at least I would not fumigate it until traces of worms begin to be seen in the honey. A bee-proof room is probably moth-proof.

CALLING THE ROLL.

Feb. 11, roll was called. Nos. 50 and 58 failed to answer. They were chaffed in on summer stands. Of 80 colonies, half are in the cellar, right under our sitting-room, where the children romp, and where the organ is required to give forth the praises of our heavenly King. Then, too, we have potatoes in the cellar. The thermometer varies from 35° to 40°, 45°, and 48°. The bees are all O. K. yet, and seem in good shape. I carried out several colonies to day, and found no smell upon their garments — no, not even a hair singed. SAM. H. BOLTON.

Benton Ridge, Hancock Co., O., 1886.

A WARNING AGAINST USING FIRE AROUND THE APIARY.

Last Saturday I came very near losing a great number of my bees by fire. The severe cold weather we had here has killed the grass and the orange leaves. I was cleaning up, and set fire, outside the apiary, to clean up a place to make a fire outside, when the wind caught the flame and carried it right among the hives. It took all hands and the cook to put out the fire. I did not lose any bees. It scorched some hives badly, and melted some wax I did not want melted, but I thank God that I got off so well.

D. M'KENZIE.

New Orleans, La., Jan. 1886.

HOW TO REMOVE POLLEN FROM OLD COMB BY MEANS OF A FORCE-PUMP.

I see by GLEANINGS of Feb. 1, 1886, page 105, E. S. Hanson makes inquiry how to remove pollen from old combs. As I have removed pollen from hundreds of old combs, I will give my process. I take wool-twine, in lengths long enough to go around my frames the shortest way. I tie two strings around each frame a little way from the ends (my frames are 15½ in. long), to hold the combs from breaking out. I take a tub or barrel, and place the combs in "criss-cross." As fast as I put in combs, I fill up with water, taking care to get as much water as possible in the cells; when the combs are all in I put on weight to keep them under water. I let them remain 48 hours. I attach the hose to my force-pump, and put the windmill in gear, then place the comb on edge, with my finger over the end of the nozzle to make the water go in a flat stream. With a good wind, the pollen will fly out lively. Hold the nozzle within six or eight inches of the comb. I have to soak some of the combs the second or third time. In the absence of a force-pump, the extractor would do nearly as well. Not one comb in 50 need be broken if properly handled.

Valparaiso, Ind., Feb. 13, 1886. T. S. BULL.

If I understand you, friend B., your plan is to soak the pollen in water until it is soft, and then wash it out with a spray of water. I presume a fountain pump would do it nicely.

FLAT-BOTTOMED FOUNDATION AS GOOD AS ANY FOR SURPLUS.

GLEANINGS for Feb. 1 is at hand, and I think it alone worth the subscription price. I used some flat-bottomed foundation last season. The thin, for sections, did as well as any; but the thicker, for brood-frames, was nearly all worked into the natural shape; that is, the bottoms of the cells were worked down into the three little lozenge-shaped plates, the same as in natural comb. I don't know whether this is always the case or not, as the bees were not doing much at this time. The weather so

far has been very favorable for bees, the thermometer having been below zero only once, and warm enough for them to take a good fly every few days. There is no sign of dysentery among them yet.

FRED W. CRANSTON.

Woodstock, Champaign Co., O., Feb. 2, 1886.

Friend C., we suppose you mean the flat-bottomed foundation is as good as any after the bees have got the shape of the cell to the natural form; but the question then arises, How much time does it take the bees, when they are busy with a crop of honey?

DRONE-TRAPS, AND SOME SUGGESTIONS REGARDING
THE SAME.

I experimented last year with Alley's drone and queen trap, and in each case, when I had a trap attached to the hive, the queen was caught when the bees swarmed, and the swarm would return, and settle on the trap. I think that, by having a cone attached to the Jones' guard, I can use the same as a queen-trap, and have automatic swarming in my apiary by simply putting one end of a wire-cloth tube over the cone, and letting the other end of the same enter the box or hive, with entrances secured by perforated tin. The box or hive may be set on or near the hive which is expected to swarm. The queen and some of the bees, when they leave the parent hive, will enter through the tube into the box or hive prepared for them. The returning swarm will follow, and I shall have only to move the box in the evening to a new location, and the swarming is accomplished without any watching or any attendance of the bee-keeper during the day.

If you have tried this plan, let us have your experience.

C. H. GROTE.

Mauston, Juneau Co., Wis., Dec. 14, 1885.

Your idea is tiptop, friend G., in theory; and all that remains is for somebody to put it in practice. I believe we have already had arrangements that were somewhat similar in plan of working. None of them, however, seem to have come into general use.

DOES BLASTING ROCKS WITHIN THE VICINITY OF
HIVES DISTURB THE BEES?

I live right in the city. My lot is 50 by 125, with a large house on it, so I have but little room to keep my bees. I work in the shop, $1\frac{1}{4}$ miles from home. When my bees swarm my wife telephones to the shop, and I come home and hive them. I sold three hives of bees for \$18.00, and have three more engaged for spring, if I have any left. They are building a sewer right past my hives. They have to blast through solid rock from 5 to 10 feet deep. They have from 20 to 30 blasts a day, and I think it disturbs my bees, for I find a great many dead bees at the entrance.

MARSHALL DARLING.

Waterbury, Ct., Jan. 2, 1886.

Friend D., if the blasting is to continue any length of time, I think I would fasten the bees in the hives and move them away for a while.

HOW SOON SHALL BEES BE PACKED FOR WIN-
TER? ARE CHAFF HIVES DESIRABLE?

A bee-man met me a short time ago, and in the course of our conversation he turned to bees. He asked me if I had fixed up my bees. "Yes," I said, "early." He said he did not believe in fixing them up complete so early for winter, for he thought it

was just like a person putting on all his winter clothing in October. When the cold weather would come, he could not feel them on him. What say you, Mr. Root? I have put my bees away in sawdust hives, and I spoke to another bee-man about leaving them in the sawdust hives all summer, so that they might not be too warm. Well, he said he had tried bees in chaff hives, and they never gave nearly as much honey as hives that were out and exposed to the hot sun. So I thought I would refer the matter to you.

DONALD STEWART.

Nairn, Ontario, Canada, Feb. 1, 1886.

Friend S., I suppose the locality of Canada might make some difference in the matter; but reports from localities, widely different in climate and temperature, have invariably shown that bees make more surplus honey in chaff hives than in single-walled hives. Your friend can easily satisfy himself of this by trying a single-walled hive and a chaff hive side by side. During hot summer days the bees in the thin hive will crowd out in great numbers, on account of the heat, while those in chaff hives will remain comfortable inside. We greatly prefer chaff hives for summer as well as for winter. This is true, however, that there are times in the spring when the warmth of the sun is beneficial to thin hives, when chaff hives, on account of their extra thickness, are not warmed up at all. On this account, it has been several times suggested that the outer covering be made of glass, inclosing a dead-air space inside of the chaff. During winter and spring, the glass would keep off the cold winds, but permit the rays of the sun to pass through readily, warming up the bees as it warms up our solar wax-extractors; and it warms them up nicely, even when the weather is zero outside. The objections to such a hive would be, first, the expense; second, without something to shade the glass, when the sun becomes too warm it would melt the whole inside of the hive down, and more or less supervision and manipulation would be necessary. With a house-apiary it might be managed better; and if it were desirable to start bees to breeding very early in the spring, there is hardly a question but that a combination of a greenhouse and house-apiary would fix it to perfection.

THE GRANULATION OF HONEY NOT CAUSED BY
BEING EXTRACTED EARLY.

I believe it is generally admitted, that all pure honey will granulate at the approach of cold weather, which I find is not correct. My honey has not granulated, neither did it last year, kept in a cool honey-house, in open tin cans (that is, loose covers); also in light barrels; yet there is no appearance of granulation. I have kept bees for quite a number of years, and have never fed, all told, five dollars' worth of sugar to bees; and if my honey is not pure the bees have "played off" on me. My honey is Spanish needle. One writer, I think, said that if pure honey did not granulate it was for the reason that it was extracted too green. In answer to that, my sister, living one-fourth of a mile from me, extracted some before any of it was capped over, and hers granulated at the approach of cold weather, and my honey stood in the hives a month after the honey season closed, and was perfectly ripe. All was

gathered from the same source and at the same time. Three years ago my honey was partly gathered from what we call "jack-oak;" and that year it granulated.

R. ROBINSON.

Laelede, Ill., Feb. 15, 1886.

Since you mention it, friend R., I am inclined to think that well-ripened honey is not as much inclined to granulate as when it is "green," as we often term it; and it also occurs to me that honey from Spanish needles is not apt to granulate when it is thoroughly ripened. We have had some of a beautiful amber color, so thick that a saucerful could be turned over without spilling; and for all that, even zero weather produced no signs of granulation.

ARE THEY BLESSINGS?

Though I differ with you in many things, I fully agree with what you said recently in *GLEANINGS*, in regard to considering honey-yields as blessings from God, and that it were perhaps safer to send us more of them, if we would regard them as such. By the way, is it quite fair to call the honey-dew we have had, "bug-juice," and the like unthankful terms, when many could have considered it a blessing, as it came in a time when bees were getting comparatively no honey? I extracted it mostly, and used it for stimulative feeding; but as I did not know what it was, and did not extract all of it, I had considerable loss, but am the wiser for it.

Marshallville, O.

C. WECKESSER.

Thank you, friend W. You are right, and we will try to stop using any term that sounds even in a slight degree disrespectful to the all-wise Creator. The honey-dew has indeed been a blessing to us in our business, for it has kept brood-rearing going when it would not otherwise have done so without feeding; and with the large force of honey-gatherers in our apiary, it is generally all worked up into brood, so it does no harm. Many of these things that seem at first to be hindrances can be turned into blessings if we handle them rightly; and through it all, our attitude of heart should be, "Thine be the praise and the glory."

ROACHES IN BEE-HIVES.

I have a few questions to ask about bee-keeping. Did you ever have roaches in your bee-hives? I have two hives infested with them. I have changed the bees into new boxes, and they are still in them. I see they pick out the young brood in the combs. Have you any way of getting rid of them?

Post Oak, Mo.

J. S. BRUCKART.

Friend B., the trouble with roaches, I believe, belongs to the Southern and Middle States. We have none of them here. From the reports given, I have been inclined to think they did but little if any harm. If they are picking the brood out of the combs, however, it is a serious matter. Will not a strong colony repel them?

LEAVING BEE-HIVES IN A SNOWDRIFT.

You advise us to leave our hives nearly or entirely covered with snow in winter instead of keeping the entrances open. Now, have you ever successfully tried that plan for one or two months at a time? I lived the first twenty-five years of my life

within twenty-five miles of Medina, O., and can fully realize the difference in the snowfall between there and here. I have often resolved to let them alone, with one or two feet of snow over the entrances; but my faith in that plan has never held out over one week at a time. This is a question of vital importance in this locality. We use chaff cushions in upper story, with an inch hole in each end of the cover for ventilation. This is an excellent locality for bee-keeping, though last season was an exception.

J. H. MANNING.

Sun, Newaygo Co., Mich.

Friend M., we have, ever since we kept bees, rejoiced to see the snow all over the hives so that they were entirely out of sight; but I do not know that we have ever had them covered up *entirely* for as long a period as two months—perhaps not more than half that time; but I have never had reason to think that a colony was injured by being covered with snow, but quite the contrary. Neither have we ever had any reports to the effect that snow would hurt bees, unless it was where the drainage was so poor that, when the sun came to thaw the snow suddenly, the wet snow, or slush, would cover the entrances. In that case, if the top of the hive were tight it might damage them.

SPEED OF BUZZ-SAWS, ETC.

When and how can I best move ten swarms in hives ten rods?

3—ADAM LEISTER, 7—10, 0—70.
Brunswick, Ohio. 3) 1—3, 3—7, 7—10.
Feb. 14, 1886. X—\$28, \$20—\$5, MX—\$20.

Explanation: The 3 here stands for 3 years of bee-keeping. The upper row shows increase in successive years. In lower row, first figure in each set shows cash income; second figure shows cash expense for that year; X stands for "experience;" M, for "more." After name, 0 stands for surplus honey in 1885; 70, for pounds of sugar fed; work, not taken into account. At what speed do you run buzz-saws and cutter-heads?

A. L.

Friend L., if you can move the hives after a spell of cold weather that has prevented the bees from flying, say from ten days to two weeks, I think you will not have very much trouble. See *A B C book*, p. 172. There is much difference in the behavior of one colony under such circumstances, compared with that of another. Some bees will take their points and come straight back to their hive, if you should move it every few days; others will remember the location, even if they have not had a fly for a month, or perhaps all winter, and go back to the old familiar spot.—Your interpretation of your characters and figures makes one think you have been recently reading about Nebuchadnezzar and Daniel. Never mind. It illustrates how long a story can be told in a small space, and that is a lesson that a great many of us need to learn just now.—In regard to the speed of buzz-saws, it is laid down in the *A B C book* that the points of the teeth should move at the rate of about 8000 feet per minute; but the kind of work to be done has something to do with it; also the kind of wood to be cut. But the rule given above will be found to be not far out of the way for the generality of work.

FERTILIZING QUEENS BY MECHANICAL MEANS; FORMING NUCLEI.

I notice in *GLEANINGS* for Dec. 15, 1885, page 882, editorial, that Prof McLain has succeeded in "fertilizing queens by mechanical means." I have been looking for that for some time in *GLEANINGS*. I still don't know how, but hope that, as soon as you know, you will give it to your readers. It will be a grand thing for me and others of your readers who are surrounded by black bees and log gums. The season here has been unfavorable for bees this year, although they have made enough to winter on. I am a farmer, and do not have much time to devote to my bees. I love my bees a great deal better than I do my plow; and if I were certain that I could make money at the business, I would quit farming and go at it right. I like G. M. Doolittle's plan of forming nuclei. I have tried it a number of times, and succeeded every time. That alone has been worth to me more than *GLEANINGS* cost. I have introduced queens by it when other methods have failed.

F. P. HISH.

Henton, Shelby Co., Ill., Dec. 21, 1885.

Friend II., I hardly think fertilization of queens by mechanical means is going to come into use very much, even if it succeeds. You will have to watch the ages of your queens, so as to take them at just the right time, and then it will be necessary for you to catch drones. The whole operation, it seems to me, is going to be too much expense to come into general use.—If I were you I would stick to the plow until your bee-business is so well established that it is a safe thing to give it your whole time; that is, make it a gradual work of letting go of farming and taking up bee culture. While the bees may give much the larger profit on the investment and labor, there are a good many risks about the business.

NATURAL SWARMING AND NON-SWARMING.

No queen, no bees; no bees, no honey. More queens, more bees; more bees, more honey. Such thoughts were in my mind in the spring of 1884; and for experiment, two strong colonies were chosen, being swarms from the same colony in 1883. One of these was to be tested by natural swarming, and the other by artificial swarming. June 4th, No. 1 swarmed, and soon after, the old colony was divided into nuclei of one and two frames each, all having good queen-cells. One of these swarmed (a mere handful), and was hived on a comb and a frame with a little brood on it. These all raised good queens; and as soon as hatching brood could be spared from the new swarm, a frame was given to each nuclei, building them all up evenly. August 2d the new colony swarmed again, and, by division, two more colonies were made. August 13th one of the colonies swarmed and was not seen. No. 2 swarmed June 8th, and again the 24th.

The result of the season was, No. 1 an increase of ten colonies and 325 lbs. of honey; and No. 2, an increase of two colonies and 191 lbs. of honey, while the best yield from a strong colony that did not swarm was 156 lbs. of honey. There was no honey taken from the brood-chamber, which was well filled for winter supplies. The average yield of the apiary was 80 lbs. of honey. In the spring of 1885, on a farm seven miles from home, were three colonies of bees which I wished to Italianize; and as there was no one to watch them they were divided

so as to prevent swarming, but failed in one instance. Three dollar queens were used, and divisions were made till there were 17 new colonies with Italian queens. The hives were well filled, and a surplus taken of 353 lbs. of honey from the upper stories. The division was carried too far for the largest yield of honey. An increase of 7 colonies in the first, and 13 the last trial, would have given a larger surplus. In the first experiment, those that I tried in 1884, allowing that the new colonies had 40 lbs. of honey each, the comparison shows that division gave 725, natural swarming 271, and non-swarming, 156 lbs. of honey. Successful as these experiments have proven, I would not advise any mathematical Californian to waste paper in calculation of what he might do with 100 colonies increased in a like ratio for five years. L. M. BROWN.

Sergeant's Bluff, Iowa, Mar. 8, 1886.

Friend B., the point you make is a good one; yet much of the success you have met, I think, depends upon the fact that your locality is not overstocked at all. On the contrary, perhaps there is honey for several times as many bees as you keep. In such cases, more honey will be secured by judicious dividing or artificial swarming, and by getting as many queens to lay eggs as early in the season as you can. When, however, you have from 50 to 100 colonies in one locality, so that the flowers are all visited, and the bees begin to crowd each other, then there will be an advantage in the prevention of swarming. I should say, that in any locality, not overstocked, more honey will probably be secured from a single colony by judicious increase than with no increase.

A TRIP TO CALIFORNIA; ALSO SOMETHING ABOUT A VISIT TO FRIEND HAYHURST.

I have recently returned from my winter's trip to California, and have been and am taking pleasure in reviewing old acquaintances and shaking hands with old friends, so I would not forget you. I find, that in central California, in the great river valley, what honey they get is of no great value, being dark and strong. There are a great many bees in the trees, sometimes several swarms in the same tree. In the foot-hills the honey, if they get any, is likely to be better, that from the alfalfa being fine. As nearly as I found out, the great honey section is in the southern part of the State.

On my way home I stopped to see friend Hayhurst, of Kansas City, and was very glad I did so. He has some of the finest bees I have yet seen, and he knows how to care for them. To prevent the queens from fighting, he cages each cell separately before putting into the nursery. It is, as Mr. H. says, a mistake to suppose queens just hatched will not destroy cells remaining, or each other, for they will so do if strong and vigorous. This has also been my experience. Who has a different report?

I arrived at home and found my bees in good condition for this time of year, and I hope so to keep them.

CHAS. R. BINGHAM.

Edinburg, Ohio, Mar. 22, 1886.

WINTERING BEES UPSTAIRS IN A WARM ROOM.

Some time last season one R. F. Perry, of Clarkston, Mich., wrote me about purchasing some bees or queens of me, and incidentally dropped the remark that he never lost bees from wintering. In replying to his communication I asked him how he

wintered. He replied that he wintered upstairs, with a stovepipe passing through the room. I was then very busy shipping bees and queens, and hadn't time to correspond further. His letter was laid by and almost forgotten until I saw friend Hutchinson's article in Jan. No., page 6, where the idea is advanced that the temperature of cellars may be kept even as high as 90°. Then I thought, "Why not put the bees upstairs where it is warm and dry?"

I again opened correspondence with friend Perry, and learned that for four winters he has kept bees in an upper room, through which a pipe passed from a stove below, where the family lived.

He prepares them thus: When cold weather is well settled in, the bees are quietly carried into the chamber; the covers are removed from the hives, and a folded blanket laid over the bees; the entrances left all open, the room kept absolutely dark, and as cold as possible, for six or eight days, until the bees get used to the jar of the house; then a fire is built below, and the room kept warm all the rest of the winter. Has anybody else ever tried this plan? Is it not much better than cold, damp cellars?

S. C. PERRY.

Portland, Mich., March 11, 1886.

SUCCESSFUL WINTERING IN BOX HIVES; A FACT AGAINST UPWARD VENTILATION.

My father kept bees in Washington Co., N. Y., when I was but ten years old. They were kept in box hives. The hives were set up about one foot from the ground. The entrance was at the bottom of the hive, about one-half inch wide by four long. They stood on summer stands all winter, with no ventilation except at the entrance, and the top was sealed as tight as the bees could make it. I don't remember of ever losing a swarm in winter. Father moved to Lorain Co., Ohio, when I was 15 years old. I found a swarm on an apple-tree the second year. I put them in a box hive, and carried them home. They swarmed once that season, and both swarms wintered well. The next summer I cut two holes in the top of one of the hives, and put on two boxes of a capacity of about 5 lbs. each. These I took off in the fall, well filled. I laid a board over the top of the hive. In the spring the bees were dead, although they left a good supply of honey. The hole through the top of the hive was left open during the winter.

A. ALLEN.

Tecumseh, Neb.

"CHAMPIONING" MR. HEDDON.

Its author may not have intended it, but the article on page 171 gives the impression that, in my review of Mr. Heddon's "separatist record," I either read carelessly, or, if I found any thing upon the *opposite* side, I suppressed it. I did neither. My only fault, if faint it can be called, was in *not going back far enough*, although I went back twice as far as the editor said it was necessary. I went back *four* (not "*numerous*") years, while the quotations given, showing that Mr. Heddon was *once* opposed to *separators*, are from writings *five* years old. I have never "*championed*" any man, in the sense in which I have been accused of "*championing*" Mr. Heddon, and *never shall*. I have always fearlessly championed what I believed to be the *truth*, and shall continue to do so, even if in so doing I am frequently compelled to agree with Mr. Heddon, "*or any other man.*"

W. Z. HUTCHINSON.

Rogersville, Genesee Co., Mich., Mar., 1886.

QUIESCENCE IN WINTERING.

It has always been my aim to get the bees, while in their winter quarters, in that quiescent condition mentioned by friend Doolittle, page 212. When I can get them into that state, I always have good success, and the amount of honey consumed is remarkably small. With the experience of the past winter I have concluded that I can the most effectively accomplish it in the cellar, where, henceforth, I think the major part of my colonies will be wintered.

CHRISTIAN WECKESSER.

Marshallville, Wayne Co., Ohio, Feb., 1886.

CEDAR HEDGE A GOOD WINDBREAK; HOW TO SET OUT.

A cedar hedge makes a good windbreak for bees in winter, and also a nice hedge around the house-yard or garden. It is raised as follows: Dig the trees and put them in a tub containing some water and dirt, so that the roots don't get dry, or else they will not grow; then plant them in a straight row two feet apart. Cultivate them the first two years; trim the new growth back occasionally. When they have the desired height, trim off the top. In four or five years you will have a nice green wall, so thick and tight that a bird could not get through.

JOHN F. HOCKEMAYER.

Campbellton, Mo., Mar. 12, 1883.

A SUITABLE BEE-DRESS FOR A WOMAN.

I think the neatest and most convenient bee-dress for a lady consists of a linen ulster, which can be slipped on over any kind of a dress. For the head, I prefer a light straw hat, with a rim of medium width, to the edge of which is securely attached a veil of Brussels net, extending clear around, in such a manner as to admit of its being drawn down over the face. This, with a handkerchief tied about the neck, completes my bee-dress. As for gloves, I leave them for those who can work in them.

SARAH E. DUNCAN.

Lineville, Iowa.

REPORTS ENCOURAGING.

FROM 35 TO 50, AND 5000 LBS. OF HONEY; A GOOD REPORT FOR SWEET CLOVER.

WE commenced the season with 35 colonies, and increased to 50. We extracted 5000 lbs. of choice honey, and have been and are now selling at 20 cts. per lb. at retail. We are not selling much at wholesale. Wholesale prices are about 10 to 12½ per cent less. The honey was from alfalfa mostly; nearly all Colorado flowers furnish some honey, but nothing seems to yield every year like sweet clover. Alfalfa failed in 1884, but yielded largely in 1883 and in 1885. I use chaff hives; winter on summer stands, and last year was more profitable than any other business I struck. If 100 colonies would average as well as 50 or less, I guess I would take the 100.

R. H. RHODES.

Arvada, Jefferson Co., Col., Feb. 10, 1886.

A FEW FACTS OF EXPERIENCE, FROM A LADY.

Friend Root—We hereby hand in our fourth annual report for 1885. We commenced the season with 27 colonies; and although we worked most of the season against increase, we closed the season

with 44 colonies and 827 lbs. extracted honey and 217 lbs. comb honey, and our bees all in good shape for winter. We wintered 28 colonies in the cellar and 6 in chaff hives on their summer stands. All came through in good condition. We weighed and placed them in the cellar Dec. 10, 1885. We took them out March 13th, and, weighing them again, found they had lost, on an average, 5 lbs. and 6 oz. per colony.

The season of 1885 was a peculiar one—cold and wet in the spring, and cold and wet during the honey-flow in September, which cut our crop short. Although not as good as some seasons, yet it was better than others, and we are well satisfied with the season's work. We have to work against a great many disadvantages in this locality, having no white clover or basswood; but for all that we have made money every season that we have kept bees. Nearly all who have tried the business here have failed, and given it up as unprofitable. "Doesn't pay," is the cry. Our success, though moderate, has not been through superior knowledge of bee-keeping, but to giving a strict attention to details, and doing a thing when it should be done, mixed with a good deal of enthusiasm and hard work. Had the others who have failed worked as hard as we, they probably would not have failed. Many times we have felt like giving up, as have all bee-keepers sometimes. I don't mean all, but some of them have been, and others yet will be, the worst-disgusted mortals that ever lived, and will almost wish they had never seen a bee. The dark clouds pass away, and we feel renewed strength because we have conquered, and rejoice thereat. During the past season we have formed a few opinions as follows:

That the Heddon method to prevent after-swarms has never failed with us, and is the best; that wide frames to procure surplus are as good as any. Last season our opinion was in favor of the Heddon case; our opinion is reversed this season; that there is little or no difference in the amount of honey gathered, whether bees are working on the L., Gallup, or our own size of frame, size $10 \times 12 \frac{1}{4}$, every thing being equal; that the Cyprian bees gather more honey than the Italians, but they are poor comb-builders; that hybrid Italian queens, crossed with German drones, produce better honey-gatherers than pure Italians, but perhaps no better than a pure Italian queen mated with a pure Italian drone of another strain; that we don't like clipped queens, but might change our opinion if our apiary ran up into the hundreds; that we shall have a good chance to test the merits of our five acres of alike clover sown last season as a honey-plant, as nothing else yields honey at the time it blooms.

Rossville, Kan., Feb., 1886. MRS. M. F. TATMAN.

BEES DOING WELL—ONLY ONE COLONY LOST OUT OF 105.

My bees are doing well. I lost only one out of 105. I think we shall have swarms by April 1. My bees are all very strong, and have a large amount of brood. I think it will be advisable for me to extract from my upper stories, as they have whole frames of sealed honey. They are now bringing a great deal of pollen and some honey.

I think from the present indications that we are going to have the greatest honey-flow since 1882. I am getting a good many of my neighbors to quit the old log gums, and adopt in their stead the mova-

ble-frame hive. The bee-fever seems to be advancing to a very high point in this portion of the State. I think from this, if for no other cause, I can get them to improve their bees.

M. SIMPSON.

Gatesville, Tex., March 16, 1886.

WINTERING NICELY.

I have 48 good strong healthy colonies of Italian bees in two-story chaff hives, all wintering well so far on the summer stands. They have plenty of stores to winter on. I fed each colony one dollar's worth of sugar last fall. I lost but one swarm, and the queen was a drone-layer, which was the result of losing it. We have had nice warm sunny days, so the bees would get a flight every now and then. From all appearances we may have a good summer for honey here this summer.

Lower Salem, O., Mar. 5, 1886. CHARLES HAAS.

KEEPING A RECORD WITH THE BEES.

I went into winter quarters in 1884 with 29, and came out with one strong and 13 weak colonies. The strong one was the one to which I introduced the Italian queen I bought of you. She had more bees than three of the others put together, and I got 105 lbs. of comb honey from this one—as much as from all of the rest. In 1885 I increased to 28. I doubled up to 35, and sold one. I then went into winter quarters in 1885 with 34 in good condition. I have lost three from freezing. My bees had a good fly the 7th and 8th of February. I winter on summer stands. It was exceedingly cold here this winter. The mercury was 20 below zero.

| | |
|------------------------|----------|
| Total receipts on bees | -\$53.00 |
| Expense | 25.15 |

| | |
|-------------|---------|
| Net profits | \$27.85 |
|-------------|---------|

I keep a record of all expenses and receipts, the same as dealing with my neighbors.

Cowden, Ill., Feb. 18, 1886. A. W. SPRACKLEN.

LOST 4 OUT OF 15 COLONIES.

Bees are in good condition at this time; they are having a good fly to-day. I have lost 4 out of 15, fall count. I began the spring of 1885 with 5 weak colonies in old box hives; increased to 15 and took 140 lbs. of comb honey, principally from red clover. I hope to do better this season.

J. N. DAVIS.

Moreland, Ind., Mar. 18, 1886.

2000 LBS. OF HONEY FROM 16 SWARMS TAKEN WITH A HOME-MADE EXTRACTOR.

We have had three or four frosts this winter, which reminds me that I have made no report yet for last season. I commenced last spring with 26 hives of bees, nearly all in old boxes, which I transferred to Simplicity hives. I made my own extractor and extracted 2000 lbs. of honey from 16 hives, and from the other 10 I got about 250 lbs. comb honey. I sold four stands, and have twenty-four to commence with this year. I received the saws you sent by mail, and was glad to know that you are so prompt in business as to correct the mistake at your own expense. I have never dealt with any one whom I would rather deal with than you, for I believe you to be honest.

WALTER B. FISHER.

Uvalde, Texas, Jan. 3, 1886.

FROM 4 TO 9, AND 400 LBS. OF HONEY.

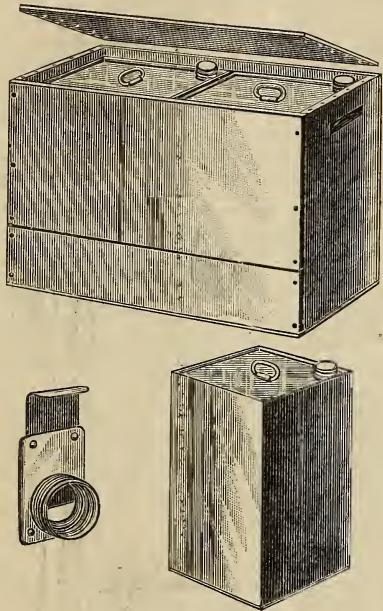
I started in the spring of 1885 with 4 colonies—3 strong, one weak; increased to 9, and took 400 lbs. of comb honey, nearly all from basswood.

Georgetown, Iowa, March 9, 1886. IRA WILLIAMS.

HOW SHALL WE PUT UP OUR EXTRACTED HONEY?

IRON-JACKET CANS DISCARDED.

THIE package used for liquid honey by the friends in California is, at least for the most part, a square tin can, either soldered up tight or having a screw cap at the corner to pour out the contents, as shown below.



OUR NEW 58-LB. HONEY-CAN.

A square tin of itself would hardly be safe to ship by freight; but a stout box can be made to contain a single can, at an expense not to exceed 7 or 8 cts.; and where two cans are crated together, which is the usual way the friends in California do it, the outside protecting box can be furnished for an even 10 cts. The figures above explain the matter so fully, no further description will be necessary. The materials required for the can are two sheets of charcoal tin, 14 x 20, and two sheets 10 x 10. By reference to our price list you will find that the tin costs 12 cts. for the body, and about 8 cts. for the top and bottom; so the materials cost only about 20 cts. To make the can, you take the two larger sheets and lock them together so as to stand end to end. This gives you a sheet of tin about 14 x 40 inches. Square it up true and accurate, and lock the extreme ends together, making it a sort of oval-shaped can, without top or bottom. Bend it at right angles where the seams are, and then between the seams, and your can-body is done, except the top and bottom. Notch out the corners of your 10 x 10 pieces; fold the edges with a suitable folder, and they will slip on the can tight enough to solder. Put on a screw cap, as shown in the cut, and a handle made of stout wire, and your can is complete.

FRIEND T. P. ANDREWS' UNIVERSAL HONEY-GATE.
The above is shown in an enlarged view

at the left, below the large cut. It is made of a piece of stout charcoal tin, $2\frac{1}{2}$ x 3 inches. A piece of heavy leather is fastened by four rivets to this piece of tin. The leather is 2 x 3 inches, so that we have $\frac{1}{2}$ inch of the tin projecting on two sides. Fold this tin which projects, in such a way as to take in the tin slide, as shown in the cut. Before putting the leather on, we solder securely to this piece of tin the loose top of one of the above-mentioned screw caps belonging to the honey-cans. After it is soldered fast, with a suitable punch we cut a hole through both cap and tin. This gives us a honey-gate that will fit on any of our square honey-cans, so your grocer need have but one honey-gate, and he can attach it to his square cans as fast as he retails from them. Friend Andrews, the inventor of this honey-gate, writes as follows in regard to the whole apparatus:

SOME OF THE ADVANTAGES OF THIS PACKAGE
OVER BARRELS AND KEGS.

This package has been used by myself and other bee-keepers here for the past two years, with great satisfaction. The case of 2 five-gallon cans cost 65 cts. each, with cork nozzle; 5 cts. more for screw caps like the one I sent you. They are made by E. T. Mason & Co., 247 Lake St., Chicago.

It costs less per gallon than the cheapest kegs; and no more, I think, than barrels when waxed.

The honey in these cans is sealed up *air tight*. It gets no bad taste from the packages. The cans are ready for use (can get them in three or four days). They do not leak. It makes a convenient package for the retail trade, with my honey-gate attached. If the honey becomes thick or granulated, it can be readily liquefied by setting the can on the stove, or in hot water. A case similar to this is largely used by the California bee-keepers.

Now in regard to the gate. You will see that it can be screwed on to the can in place of the cork-lined screw cap, which is to remain on the can till it is desirable to draw the honey. If, when the gate is screwed on tight, it is not right side up to draw from, it may be unscrewed a little, and a bit of string, or a small rubber band, put around the nozzle, and the gate screwed up again until it is right side up when tight. To make the honey run freely, a small hole must be pricked in the top of the can, in the corner furthest from the gate. If the gate should leak any, the can may be set on end when the gate is not in use. I have made a dozen or more of these gates, for the use of my customers. In making them I bought the caps—worth \$2.00 per 100. I cut the tops of the caps out with a center-bit, the lip having been filed off. The corresponding hole in the tin was also cut with the same bit. I do not intend to manufacture them for sale. With heavy tin, and leather of even thickness, I think they can be made tight enough so as not to leak under as low a pressure as they would be subjected to on a five-gallon can; and if the gate should leak a little it would not be a very serious objection, as the can may be easily set on end.

To make the slide work easier, I would suggest that it be made at least $\frac{1}{8}$ of an inch narrower than the ways in which it slides. T. P. ANDREWS.

Farina, Fayette Co., Ill., March 1, 1886.

In regard to prices of the above, we can furnish a pair of the cans in a box, screw caps and all, for 90 cts. each; in lots of ten, 80 cts. each; and in lots of 100, 70 cts. each,

the same as they are offered in Chicago. The little honey-gates will, for the present, be 15 cts. each; \$1.25 for 10, or \$10.00 per 100. One honey-gate will answer for 100 cans or more, as you will observe. The air-hole is easily stopped by means of a drop of solder when the can is to be used again for shipping. These cans hold exactly 58 lbs., or 5 gallons, like the old iron jackets. The price of a can crated singly is 50 cts. They will, as a general rule, be shipped in pairs. A stick, one inch square, is laid over the tops of the cans, before the cover is nailed.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

—
A. I. ROOT,
EDITOR AND PUBLISHER.
MEDINA, O.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, APRIL 1, 1886.

Though a host should encamp against me, my heart shall not fear.—PSALM 27: 3.

WE have to-day (April 1), 5249 subscribers.

ALSIKE CLOVER.

ON immediate orders we can furnish alsike clover at \$8.00 per bushel. If less than a bushel is wanted, the price will be \$4.25 per half-bushel; \$2.25 per peck, or 18 cts. per lb.

BLUEBERRY-PLANTS.

SINCE the letters were published in regard to these, on another page, more of a similar import have come in. If Mr. Delos Staples wants to refund the money he has received for these dried twigs, he may regain his good standing, but nothing else will answer.

WINTERING BEES IN A WARM ROOM.

THE plan of wintering, on page 271, I think is a mistake. In the first place, it is a very difficult matter indeed to make an upper room absolutely dark; and after you have got it absolutely dark, my experience has been that the bees will go out when the temperature gets up to 60 or 70°. Although there may be occasions when very strong colonies would stay in their hives, as a rule I am sure it would not work.

MAPLE SUGAR AND SYRUP.

WE have now a very fine lot of new maple sugar, at 7, 8, 9, and 10 cts. per lb., according to quality. By the barrel of 520 lbs., one cent less. For the convenience of those who want a smaller package than a gallon, of the new evaporated maple molasses, we have the whole crop made by neighbor H., put up in half-gallon cans at 60 cts. per can. Neighbor H. has already, this 29th day of March, 500 maple-trees on his own grounds, dropping the crystal sap into new tin pails, and one of the most modern evaporators is to-day boiling it down into this maple syrup. The half-gallon cans are filled with the hot syrup in the sugar-bush, and a screw cap is so arranged as to seal them hermetically while hot, so they may reach our customers in as nice shape as the best canned fruit. Ten cans, 55 cts. each; 100, 50 cts. each.

KIND WORDS OF SYMPATHY SINCE THE LOSS OF OUR WAREHOUSE.

I TAKE this opportunity to thank the friends who have written such very kind letters in regard to our loss by fire, and to express my regret that it is impossible for me to answer them individually, in the kind way their letters seem to demand. If it is indeed true, that the fire was the work of an enemy, God's promise seems to begin to be verified already. "Surely the wrath of man shall praise thee."

AN OMISSION.

THE advertisements of W. H. Osborne, Chardon, O., and C. Weekesser, Marshallville, O., should have appeared in our last issue, as they do in this. In writing about this, friend Osborne makes the following strong point:

"Perhaps it has done no damage to me, but people seem to have more confidence in regular advertisements."

Those who complain about not receiving a reply from an advertisement inserted but once, would do well to remember this.

PERFORATED ZINC OF OUR OWN MANUFACTURE.

AFTER some months of diligent toil we have builded a huge press, to be run by the engine, capable of perforating sheets of zinc about as fast as a good cow will chew up cabbage-leaves. The perforations are exactly like those made in England, which seem to give the best satisfaction, as a general thing. Our machine, however, perforates sheets only 28 inches wide by 8 feet long, making 18½ square feet in a sheet. Prices will be 10 cts. per square foot, or \$1.50 for a whole sheet, as above. Two sheets, 5 per cent off; 10 or more sheets, 10 per cent off. Samples mailed free on application. The above low prices are because we do not have to pay duties to Canada, nor England either.

OUR NEIGHBORS OF THE BEE-KEEPERS' MAGAZINE.

A NEW price list from the above firm (Aspinwall & Treadwell, Barrytown on the Hudson) is at hand, and it certainly is a novelty in some respects. The picture of the factory, store, and shipping-house on the banks of the Hudson is quite home-like, and a description of their factory at the close of their 30-page catalogue has so much of the right ring in it that I want to make a brief extract. After describing the different buildings, we read:

The executive department is seen on the right. There, surrounded on all sides by enough paper to make a junk-dealer happy, may be found your humble servants, pegging away at their correspondence, always happy to be honored by either a letter or order, however small, from you.

May much prosperity and many years of usefulness reward the new firm.

WRITING LENGTHY ARTICLES.

FRIENDS, something must be done to enable us to condense our ideas. It is not fair nor right to let one man occupy a great portion of the space in any issue, to the exclusion of half a dozen others. Let me suggest a little. Write more about your actual experience, and less about your opinions. For instance, we get long articles about reversible frames, from somebody who has never used them, and who opens up by saying he wouldn't have them in his apiary. Do we want such articles? Just at present, I do not believe that we do. The same will apply, a good deal of it, to the Heddon hive. What we want now is facts from those who have been working with them. Let friend Heddon send some hives to the friends in the South, where their bees are working, and in two weeks' time they can give us facts from experience. Please consider that we are a great body, and we want to hear from a great many. Cut your articles off at both ends, and give us the meat.

LOW PRICE OF HONEY.

SHALL WE RETAIL IT AT HOME, OR SEND IT TO THE CITY?

FRIEND ROOT:—In your comments upon my article in GLEANINGS, page 132, you say that you have heard of no one selling his honey for 5 cts. per lb. If you turn to the market reports you will find the quotations from 6 to 8 cts. in Boston. Some quotations say no demand for extracted honey; comb honey all the way from 10 to 15; mostly centers on 12½. My crop of honey was 8000 lbs. I have been working off 3000 in the home market; 5000 I shipped to different parties in New York. One lot was sold for 6 cts. per lb. After paying freightage, commission, and taking out cost of barrels, I find the honey nets me 5 cts. per lb. I wrote to friend Muth, our reliable cash buyer, early in the winter, for his prices for extracted basswood honey. He would give 6 cts. but I must deliver it. By the time it was put down in Cincinnati the freightage and cost of barrels would leave me but about 5 cts. per lb.

In relation to working up the home market, I have the same experience as Mr. Todd, of Philadelphia, only in a less degree. He says, "I have tried to develop a honey business here; and with a million people I can only say it is a heart-breaking job." Perhaps it is because it is Philadelphia. I have wondered many times why we never had quotations, or any indications of a honey market at all, in so large a city as Philadelphia.

Every bee-keeper who has had any degree of success has more or less competition. Other bee-keepers in his own and adjoining towns enter the markets with him; and where his crop is in tons he can not work it all off. It has been recommended as an excellent plan, to place honey on sale in stores, far and near, and visit the stores often enough to keep up the supply. The honey will have to be put up in small packages, and sold at a low price, with a commission to the grocer, which, added to the expense of keeping a team on the road, will reduce your profits again to 5 cts., or so near it that you will wish you had got rid of all the fuss and worry by shipping your honey in bulk to some reliable commission house. To show you how rapidly honey will sell when left in the show windows of a grocery, I give you the following: Oct. 11th I left 16 pails of honey with a reliable grocer in a thriving manufacturing village of about 10,000 population. The honey was put up in pails, nicely labeled. I left—

| |
|--|
| Four 5-lb. pails at 60 cts. each, to be sold for 75. |
| Four 2½-lb. " " 32 " " 40. |
| Four 1½-lb. " " 17 " " 25. |
| Four 1-lb. " " 12 " " 18. |

My price per pail would average me 10 cts. per lb.; then adding the price of the pail gave me my prices. The last column gives the prices sold at, and the difference between that and the next column gives the grocer's profits. In six weeks after leaving this small lot I called and found a few of the smaller pails sold. A few days ago I called again and found all sold but two 5-lb. pails. The grocer thought he would want more of the small pails, but he would let me know by postal. The postal has not arrived.

At the same time I left some comb honey, and that was as slow sale as extracted. In another village I have a cash purchaser for small lots put up in the Jones pails. His sales have been a little better, but not enough to give much enthusiasm.

There is one peculiarity about the sale of honey that I presume every bee-keeper has noticed. You

may have an excellent customer for your honey for a time, when all of a sudden he stops short off; and when you inquire the reason he tells you that the children eat so much of it they all get sick, and can't bear the sight of it on the table, "and wife and I don't like it so well as we did." Eating honey, with some people, is like eating quails. You soon get satisfied, and no more goes down. In relation to comb honey at 10 cts. per lb., I was informed that a large producer sold his honey at so near 10 cts. that, after taking out expenses of shipping, etc., I was safe in saying 10 cts.; furthermore, dealers in New York quoted me comb honey at 12½ cts. Now take out commission, freightage, and breakage, and how much are you above 10 cts.?

These low prices are facts we have got to face. You say you would give 5 cts. for any quantity. Perhaps you are so fortunate as to receive cash orders from remote points, and can afford to sell your honey thus; but we haven't all got that wide reputation, and we find it costs money to get it.

Hartford, N. Y., Feb. 24, 1886. J. H. MARTIN.

Your facts are somewhat discouraging, friend M.; but even if facts are stubborn things, I suppose it is good to have them. Will friends France and Coggshall, who make honey-extracting a business on a large scale, tell us if their honey does not net them more than 5 cts.? When I spoke of the price 5 cts., I supposed you meant that you sold it at that figure, and were obliged to furnish barrels, and deliver it besides. Probably the grocer in that town of 10,000 inhabitants sold only a very small part of the honey retailed in that town; and if other grocers sold as much as he did, it might not be such a very bad showing, after all. It seems to me that the fact that he sold all except two of the largest pails would be a fair indication that it would pay to give him another supply.

THE VANDEUSEN CLASP,

FOR FASTENING STORIES TOGETHER, FOR FASTENING MOBILE BOTTOM-BOARDS, ETC.

BOTTOM-BOARDS nailed fast, or bottom boards loose from the hive, have been discussed and argued over until the question has been dropped by mutual consent—one party declaring they never wanted another loose bottom-board in the apiary, and almost as many declaring they never want a hive with the bottom-board nailed fast. To accommodate both parties, one of our veteran bee-friends, Mr. C. C. Vandeußen, of Sprout Brook, N. Y., some years ago invented the device figured below.



THE VANDEUSEN CLASP AS IT APPEARS ATTACHED TO A HIVE, CLASPING THE BOTTOM-BOARD.

Little hooks, made of malleable iron, have been used for this purpose, so arranged as to catch on two screws; but these are objectionable, because there is not sufficient power

er to them, unless made very heavy, and also because they are not conveniently hooked or unhooked when you are in a hurry. The device shown above possesses great strength because the point of the hook is held by a projecting arm of the iron. This projecting arm is arched over so it can not hit against the screw-head. This arch also serves as a projection to strike against when you wish to draw the clasp up tighter, or to release it. On the opposite corner a similar projection answers the same purpose. If you can not get hold of a stone or piece of brick to drive them off or on, you can almost always make your boot-heel hit one projection or the other; and the machine is so stout that there is no danger of breaking it. Since iron has come down in price, we are now enabled to sell these clasps for 2 cts. each, with a couple of strong screws included. In lots of ten, 18 cts.; or 100, \$1.50. If wanted by mail, the postage will be 2 cts. each extra. Where you want 1000 clasps, without screws, we can furnish them for an even \$10.00, or at a cost of only 1 cent each.

HUMBUGS AND SWINDLES PERTAINING TO BEE CULTURE.

We respectfully solicit the aid of our friends in conducting this department, and would consider it a favor to have them send us all circulars that have a deceptive appearance. The greatest care will be at all times maintained to prevent injustice being done any one.

N. C. MITCHELL, AGAIN.
FRIEND ROOT:—Do you know any thing about the National Bee-way Co., with N. C. Mitchell for manager? He gave a lecture here the other evening, and wants to introduce his house here. It is patented. He wants to sell rights to use, etc. I should like information.

Plymouth, Richland Co., O. JOHN EDWIN.

Friend E., you are evidently not conversant with our back volumes, or you would have known that N. C. Mitchell has been advertised as a fraud and swindler for years together. For some time past, however, we have heard little about him; but of late I have had several notices that he was at work around Cincinnati. Do not, under any circumstances, pay him any money. He is not in accordance with modern bee-keeping, and any money sent to him, or given to him, is lost. Some years ago I told the friends that it was like pouring water into a tunnel. The money is gone as soon as it is out of your hands, and you have nothing in the way of an equivalent, and no means of getting it back.

BLUEBERRY-PLANTS AND DELOS STAPLES.

I bought 500 blueberry-plants of D. Staples, Michigan, last year, and have none left to tell the tale, although carefully set. The plants looked like huckleberry-bushes pulled up in some swamp, that were three or four years old, and from 4 in. to 18 in. high. I think he is a fraud.

C. A. HATCH.
Ithaca, Wis., Mar. 22, 1886.

In reply to your inquiries about blueberry-plants, we would say that we purchased one dozen from DeLos Staples. They were sent by mail, and when

received they were as dry as last year's pea-brush. They had neither oiled paper nor moss around them, but were wrapped in a piece of old newspaper. We made up our minds that he belonged to that great army of frauds our country is cursed with, and did not care to waste a postage-stamp writing about the matter.

A. H. & G. B. WORTHEN.

Warsaw, Ill., March 20, 1886.

At the time Mr. Staples first advertised blueberry-plants in our journal, we ordered some for our own use. They were simply dry sticks, with scarcely any thing on them that could be called a root. I wrote to him, remonstrating. He said they would grow, even if they had no roots. By great care and sufficient watering, we got a little start on a few of the sticks; but, with all our care, none of them lived. In the first place, it is preposterous to call *dry brush* "plants." The reason I asked for reports from others was because I wanted to see whether that was his fashion of doing business. The above letters, it seems, settle the matter sufficiently. If the friends will tell us what they paid for their plants, we will pay them back their money; and, inasmuch as Mr. Staples has advertised blueberry-plants quite extensively through all of our agricultural papers, I would ask that he be as widely advertised as a humbug and swindler. Several of our agricultural papers have already published him as above, and that is what called my attention to the matter. I very much doubt whether blueberry-plants will grow on *any* soil, as he asserts, even if good strong plants with roots were furnished. Will our nursery friends please say if I am not right?

THE GREAT "ACME PENETRATIVE," FOR BURNING STUMPS, ONCE MORE.

We copy the following from the *American Agriculturist*:

Subscribers are receiving a glowing circular printed on blue paper, describing the virtues of the "Great Acme Penetrative," of New Carlisle, Ohio. The circular sets forth, that "this penetrative actually burns stumps," and "good, honest agents are wanted." Then follows a long list of indorsements from people who have used the Great Acme Penetrative; but, unfortunately for Messrs F. E. Fross & Co., of New Carlisle, who claim to manufacture this penetrative, they have forgotten to give the postoffice address of a single individual who indorses their combustible.

The friends will notice that it is much in line with what we said on page 44, in our issue for Jan. 15, 1886. This F. E. Fross has also been offering seed-corn, possessing remarkable virtues. Many of our agricultural papers have advertised the corn. Fross claims that he offers the seed at a price that would pay only for the packing and postage, in his zeal to have farmers test it throughout the different parts of the country; but complaints have become so numerous, saying that he never sent any corn at all, that the editors receiving his advertisements have been obliged to apologize for them. We have private advices, saying that the corn he has advertised so extensively was purchased by him out of the farmers' cribs, anywhere he could find it in his own vicinity. Will our agricultural friends please pass him around until he discovers that the way of the transgressor is hard?

FOR SALE CHEAP.

Having bought an interest in A. F. Stauffer's supply establishment, to which I will devote my entire time, I will sell my apiary of

50 Colonies of Hybrid Bees, Cheap.

For further particulars, address

7-9db J. G. SEIDEL, Sterling, Illinois.

DON'T READ THIS

UNLESS YOU WANT TO BUY BEES

AT * REDUCED * PRICES. * Address
CHARLIE W. BRADISH,

7-8d Greig, Lewis Co., N. Y.

WANTED. A good reliable man who understands bees, to take care of 100 colonies. For further particulars, inquire by postal of

7d ROBERT BLACKLOCK, Gagerville, Carter Co., Ky.

FOUNDATION, 6 SHEETS FOR L. FRAME, 350 PER LB. W. T. LYONS, Decherd, Tenn.

HELP FOR THE SUFFERERS.

400 lbs. of black bees to sell at \$1.00 per lb. During April and May, black queens, 20c, and hybrids, 40c, to go with them. Safe arrival and satisfaction guaranteed. MRS. J. ATCHLEY,

7-8d Lampasas, Texas.

ALSIKE. Clean new seed, \$7.00 per bushel, bags free; discount on large orders.

Specialties. Raspberry and Strawberry plants, Italian queens, B. L. fowls and eggs. I will not be undersold. C. M. GOODSPED,

7d Thorn Hill, N. Y.

6 STOCKS OF HYBRID BEES, \$3.00 EACH. Rose comb White Leghorn eggs, 15 for \$1.00; 30 for \$1.60; 45 for \$2.00. C. G. FENN, Washington, Conn. 7d

WANTED. Fifty swarms of bees on shares here. Address A. L. MILLER,

7d West Toledo, Ohio.

FOR SALE. Hybrid bees, good colonies in Simplicity hives, with 9 frames, \$4.00; delivered at R. R. station. 7d MISS MABEL FENN, Tallmadge, Ohio.

Eggs, Plymouth Rock, Hawkins' strain, \$1.00 per setting. Langshan (Cradd) \$1.00; B. B. Red game (imported stock), \$3.00. Also Canaries and pets, nicely mounted. Sent by mail prepaid, with 50 cents as guarantee. JOHNSON & CO., 7d Taxidermists, Allenwood, Union Co., Pa.

FOR SALE. 25 COLONIES OF HYBRID BEES in 8-frame Simplicity hives; frames mostly all wired. Will take \$3.00 per colony if ordered now. Will deliver at express office May 1st. Address A. B. JOHNSON,

7tfdb Clarkton, Bladen Co., N. C.

50 Colonies of

Italian Bees For Sale,

In shipping-box, 7 L. frames, tested queen, per colony \$6.00

4-frame nucleus, tested queen 3.00

" " " untested queen 2.50

Safe arrival guaranteed.

7-10db TOM PHELPS, Sonora, Ky.

A NICE LOT OF GOLDFISH now ready for sale. Order from W. L. MCINTIRE,

7tfdb Mt. Vernon, Ohio.

100 COLONIES OF ITALIANS AT BED-ROCK PRICES.

Also 2000 new wired combs at 10½ cts. each, all first-class. Satisfaction guaranteed.

7-8d RICHARD HYDE, Alderly, Wis.

IMPORTED ITALIAN QUEENS.

We shall receive 100 Queens from Italy in May.

7-8d MUCCI & BRO.,
LEXINGTON, KY.

BEES BY THE POUND, AND UNTESTED QUEENS A SPECIALTY.

One pound of Bees, \$1.00. Queens, \$1.00 each. Express charges prepaid on orders of 10 lbs., to any part of the United States except California and Oregon. Write for discount on large orders. Orders from dealers for a weekly delivery of queens solicited. Safe arrival and satisfaction guaranteed. Make money orders, drafts, etc., payable at Baton Rouge, La.

JOS. BYRNE,
7tfdb WARD'S CREEK, EAST BATON ROUGE PAR., LA.

QUEENS FROM THE SOUTH

EARLY IN April, \$1.25 each; \$13.00 per dozen.
" May 15 " 12.00 "
" June 1 " 10.00 "
Tested, \$2.50, in April and May.

Safe arrival and satisfaction guaranteed.
Special rates to dealers. W. J. ELLISON,
7-9d STATEBURG, SUMTER Co., S. C.

ITALIAN QUEENS, untested, May and June, \$1.00; six for \$5.00; after July 1st, \$5c each; six, \$4.50; 2-fr. nucleus, untested queen, June, \$2.75; after July 1, \$2.25. Send for price list of bees by the pound, fdn., etc. JOHN NEBEL & SON, High Hill, Mo.

7-12db

EXCHANGE DEPARTMENT.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates.

WANTED.—To exchange or sell a few sittings of Mammoth Bronze turkey eggs, \$4.00 per 13; Partridge Cochin, \$2.00 per 13. Also 20 swarms of bees in chaff hives, or exchange for beeswax at 25c per lb. See ad. March 15.

7d L. GORTON, Salem, Washtenaw Co., Mich.

WANTED.—To exchange iron shafting, nearly new, 7½ feet long by 1½ inches, with 2 collars and 3 pulleys, 8, 10, and 16 inch; also 3 four-inch boxes, babbitted to fit shaft; one shaft 2 ft. 9 in. long by 1½ in., with 10-inch crank arm, and 26-in. pulley with 2 six-inch boxes, babbitted to fit shaft, for Italian queens in June, or offers.

7d F. D. WOOLVER, Munnsville, Mad. Co., N. Y.

WANTED.—To exchange Brown Leghorn eggs, for hatching, for light comb foundation. 7-9d C. M. GOODSPED, Thorn Hill, N. Y.

WANTED.—To exchange bees and queens for thoroughbred poultry, P. China and Chester W. Pigs, Simplicity and chaff hives, etc. Address 7-9d JNO. W. MARTIN,
Greenwood Depot, Alb. Co., Va.

WANTED.—To exchange apple, peach, pear, cherry, and plum trees, small evergreens, grapevines, raspberry, blackberry, and strawberry plants, flowering shrubs, vines, etc.; also a lot of Simplicity hives in the flat, or made up, with frames complete. I will exchange for bees, beeswax, section boxes, a Barnes foot-power saw, etc.

7d D. G. EDMISTON, Nurseryman,

Adrian, Lenawee Co., Mich.

WANTED.—To exchange Simplicity hives or shipping and retailing cases for comb-fdn. machine.

7d G. A. FARRAND,
Rockport, Cuyahoga Co., O.

WANTED.—To exchange bees for a Barnes saw, foundation-mill, or Light Brahma fowls; or I will sell bees by the pound; also queens in season.

5-6-7-8d JAMES P. STERRITT,
Sheakleyville, Mercer Co., Pa.

WANTED.—To exchange new Novice honey-extractors for A. and L. frames; will exchange for a bone-grinder, or good books, or any thing useful.

GEO. W. BAKER, Milton, Ind. 3-5-7-9-11-13d

WANTED.—To exchange or sell. *Eggs for hatching*, from 3 varieties of high-class fowls, selected stock, costing from \$12 to \$20 per pair. Brown Leghorns, Silver-Spangled Hamburgs, and Plymouth Rocks. Eggs, per setting of 13, \$2.00. Safe delivery and a fair hatch guaranteed. (Will exchange for beeswax delivered here at 25c per lb.) Circulars of bees and poultry free. Five settings of Brown Leghorn eggs for \$5. Address 6tfdb A. H. DUFF, Crichton, Guern. Co., O.

WANTED.—To exchange eggs from standard pedigree and registered White and Brown Leghorns of the celebrated Smith and Bonney strains, for bees, queens, and supplies.

6-7d L. J. MCNAUGHTON, Chardon, Geauga Co., O.

WANTED.—To exchange foundation for wax.

59db B. CHASE, Earlville, Madison Co., N. Y.

WANTED.—To exchange nursery stock, especially evergreens, for Italian bees, queens, and two-frame nucleus with Italian bees and queen.

678d R. A. LEWIS, Cherokee, Iowa.

WANTED.—To exchange. I have a complete printing-office, consisting of 20 founts of general job type, nearly new, some never used; 18 lbs. brevier, for circular work, all in job cases and cabinet; one Cottage hand cylinder-press, 6x10 chase, one Novelty press, 10x14 chase; composing-stick, rules, leads, etc. Cost over \$200. I will take fdn., sections, cash, or other goods. Make an offer.

6tfdb E. KRETCHMER, Coburg, Iowa.

WYANDOTTE and Houdan cockerels; good birds at low prices, to close out surplus; also one White Wyandotte cockerel; or I will exchange for white extracted honey. Eggs for hatching, \$2.50 and \$1.50 per 13.

6-7 J. EVANS,
Box 89, Schaghticoke, Rens. Co., N. Y.

WANTED.—To exchange, Simplicity or other hives for good section or extracted honey. Will sell hives (in the flat) cheap for cash, or will take one-third pay in full colonies of bees, or poultry. Hives in any quantity to suit customers, up to a car-load per day.

6tfdb G. A. FARRAND,
Rockport, Cuy. Co., Ohio.

WANTED.—To exchange Italian bees, brood, and queens, for fdn., beeswax, type-writer, or any thing having a standard market value.

6tfdb THOMAS HORN, Box 691, Sherburne, Chen. Co., N. Y.

WANTED.—To exchange white-poplar sections, sandpapered on both sides, or any kind of bee-keepers' supplies, for comb or extracted honey. Send 5c. for sample section; 50-page circular free.

6-7d J. B. MASON & SONS,
Mechanic Falls, Androscoggin Co., Me.

WANTED.—To exchange one W. Moore & Co.'s double-barreled breach-loading shot-gun (rebounding-bar locks, good as new), and one silver hunting-case watch, nearly new (Columbus Watch Mfg. Co.'s make) for foot-power saw, bee-keepers' supplies, or choice poultry or Italian bees.

6tfdb J. A. BUCKLEW, Clarks, Ohio.

WANTED.—To exchange for a farm, or sell my place, consisting of 7½ acres of ground in the town of Lewisville, Ind. A small dwelling, poultry-houses, stable, and an everlasting gravel-bank, which affords about 3000 loads of gravel every year, which sells readily at from 10 to 15 cts. per load. The place is in a good honey locality, and good shipping facilities. Apiary slopes to the south and east; is surrounded on the north and west by a tight plank fence, about 7 ft. high. Apiary is set in grapevines. I will give five years' time, if sold. Direct all communications to

3-5-7d GEO. W. BAKER, Milton, Ind.

WANTED.—To exchange aparian supplies at any time, or nuclei in June, for extracted honey, extractor, or foundation-mill. Circulars free.

67d C. P. BISH, Petrolia, Butler Co., Pa.

WANTED.—To exchange S. C. Brown Leghorn eggs or P. Rocks of pure breed for Pekin Duck eggs or other eggs of pure-bred fowls; also for sale, \$1.00 for 15, 36 for \$2.00. DAVID LUCAS, Jewett, O.

WANTED.—To sell or exchange, farm, 180 acres, good buildings, good sandy soil; also latest-improved Steam Thrashing-machine. Either or both at a bargain. Address J. A. OSBURN & SON, 7tfdb Spring Bluff, Adams Co., Wis.

WANTED.—To exchange for bees, or to sell, 15,000 Cuthbert raspberry-plants at 75 cents per 100, \$5.00 per 1000. They are nice plants, true to name. Remit by reg. letter. Address 7d P. D. MILLER, Grapeville, Westm'd Co., Pa.

WANTED.—To exchange 12 Brown Leghorn pullets, 10 Plymouth Rock pullets, 1 trio S. S. Hamburgs, 1 Wyandotte cockerel, eggs from P. Rocks, Wyandottes, Light Brahma, S. S. Hamburgs, Brown or White Leghorns, for Barnes foot-power buzz-saw, Novice honey-extractor, and saw-mandrel. Cash or offers.

7d ADOLPHUS NEWTON,
Plymouth, Chenango Co., N. Y.

WANTED.—To exchange Carniolan and Italian queens or bees, for pure-bred Brown Leghorn (Bonney's Strain), and Wyandotte eggs, for hatching. Send for circular. CHAS. D. DUVAL,
7tfdb Spencerville, Mont. Co., Md.

WANTED.—To exchange about 50 or 60 good Plymouth Rock and Light-Brahma fowls for aparian supplies, or 9 hens and one cockerel for \$5.00, cash preferred.

7d JULIUS JOHANSEN,
Port Clinton, Ottawa Co., Ohio.

WANTED.—To exchange pure Italian queens for beeswax at 28c per lb. Queens, select, \$3.00; warranted, \$1.50. Ship wax by freight to Barrytown, N. Y.

7 tfdb CORNELIUS BROS.,
LaFayetteville, Dutchess Co., N. Y.

WANTED.—To exchange 800 empty combs (nearly all wired fdn.), L. or Simplicity size, and 100 Simplicity hives (50 covers, 50 bottom-boards (all well painted, for basswood or white-clover honey, to be delivered next fall, combs and hives ready to ship now. Write for particulars.

7-8d E. T. FLANAGAN,
Box 995, Belleville, St. Clair Co., Ill.

P. S.—Will exchange 200 lbs. sweet-clover seed for honey or raspberry plants.

WANTED.—To sell or exchange, pure S. C. Brown Leghorn eggs at 75 cents per 13, for beeswax, or books of poetry or history.

7-8d MRS. ALICE BRIGHT, Mazeppa, Minn.

WANTED.—To exchange 13 Plymouth-Rock eggs for 75 cts. in cash; securely packed, and warranted pure. Orders filled at once.

7d MRS. C. E. HATCH, Kentland, Newton Co., Ind.

WANTED.—To sell or exchange Hoags' hand-planter for corn, beans, etc. @ \$2.50 cash, or \$3.00 in trade. Satisfaction guaranteed, or money refunded. S. hives in the flat taken.

7d HENRY L. WEISS,
Berkley Springs, Morgan Co., W. Va.

WANTED.—To exchange Crescent, Wilson, and Sucker State strawberry-plants for Italian queens, Wyandotte fowls, or eggs. Address 7d M. D. HEWITT, Farina, Fayette Co., Ill.

WANTED.—To sell cheap, or exchange, a 5x7-inch printing-press, type, etc., for early nuclei, queens, or full colonies. Write at once, as it is in my way, and I am anxious to dispose of it.

7d C. WECKESSER, Marshallville, Wayne Co., O.

WANTED.—To exchange, rabbits or Wyandotte fowls, or their eggs, for Gregg raspberry-plants.

7d A. A. FRAEDENBURG,
Port Washington, O.

Names of responsible parties will be inserted in any of the following departments, at a uniform price of 20 cents each insertion, or \$2.00 per annum, when given once a month, or \$4.00 per year if given in every issue.

\$1.00 Queens.

Names inserted in this department the first time without charge. After, 20c each insertion, or \$2.00 per year.

Those whose names appear below agree to furnish Italian queens for \$1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for \$1.00 before July 1st, or after Nov. If wanted sooner, or later, see rates in price list.

| | |
|---|-------|
| *A. I. Root, Medina, Ohio. | |
| *H. H. Brown, Light Street, Columbia Co., Pa. | 1tfd |
| *Paul L. Viallon, Bayou Goula, La. | 1tfd |
| *S. F. Newman, Norwalk, Huron Co., O. | 1tfd |
| *Wm. Ballantine, Mansfield, Rich. Co., O. | 1tfd |
| *D. G. Edmiston, Adrian, Len. Co., Mich. | 23tfd |
| *S. G. Wood, Birmingham, Jeff. Co., Ala. | 1tfd |
| *S. C. Perry, Portland, Ionia Co., Mich. | 23tfd |
| *E. Kretschmer, Coburg, Mont. Co., Iowa. | 23tfd |
| D. McKenzie, Camp Parapet, Jeff. Parish, La. | 1tfd |
| Ira D. Alderman, Taylor's Bridge, Samp. Co., N.C. | 1tfd |
| G. F. Smith, Bald Mount, Lack'a Co., Pa. | 23tfd |
| *Jos. Byrne, Baton Rouge, Lock Box 5, East Baton Rouge Par., La. | 23tfd |
| J. W. Winder, Carrollton, Jeff. Par., New Orleans, La. | 3tfd |
| *E. Burke, Vincennes, Knox Co., Ind. | 3-1 |
| Richard H. Bailey, Ausable Forks, Essex Co., N.Y. | 5-15 |
| S. M. Darrah, Chenoa, McLean Co., Ill. | 7-17d |
| S. H. Hutchinson & Son, Claremont, Surry Co., 7-17d | Va. |
| N. E. Cottrell, Burdick, Porter Co., Ind. | 7-17d |

Hive Manufacturers.

Who agree to make such hives, and at the prices named, as those described on our circular.

| | |
|---|-------|
| A. I. Root, Medina, Ohio. | |
| P. L. Viallon, Bayou Goula, Iberville Par., La. | 1tfd |
| C. W. Costellow, Waterboro, York Co., Me. | 1-23 |
| Kennedy & Leahy, Higginsville, Laf. Co., Mo. | 23tfd |
| E. Kretschmer, Coburg, Montgomery Co., Ia. | 23tfd |
| S. D. Buell, Union City, Branch Co., Mich. | 5-7-9 |
| C. P. Bish, Petrolia, Butler Co., Pa. | |

BEES IN IOWA. — SEE FOSTER'S — ADVERTISEMENT.

TESTED QUEENS, \$2.00; untested, \$1.00. Wax-extractor, \$3.00. Other supplies. Send for circular.
OSCAR F. BLEDSOE, Union Apiary,
Grenada, Miss.

PEKIN DUCK EGGS, 10 for \$1.00. Sent by express.
LYMOUTH-ROCK EGGS, 12 for 75c. C. L. DAVIDSON, FLEMINGTON, W. VA.

FOR SALE, ITALIAN AND CYPRIAN BEES and Queens (in any quantity). Extractors, Bee-Books, etc. Address 6tfd
OTTO KLEINOW, Apiarist, DETROIT, MICH. (Opp. Ft. Wayne Gate.)

SAVE FREIGHT & MONEY by ordering your Aparian Supplies from L. J. TRIPP.
7-8d Circular Free. KALAMAZOO, MICH.

I arise to say to the readers of GLEANINGS, that DOOLITTLE has concluded to again rear queens for sale during 1886, at the following prices:

| |
|--|
| Untested queens, each, \$1 00 |
| " " per five 4 00 |
| " " per ten 7 50 |
| " " per 20 14 00 |
| Untested queens, reared by natural swarming, each..... |
| " " per five 1 50 |
| " " per ten 6 25 |
| " " per twenty 11 00 |
| Tested queens, each, \$2 00 |
| " " per five 7 00 |

Tested queens by natural swarming, each... 3 00

Tested queens, by natural swarming, per five 10 00
" " 1885 rearing, sent in May or
after, each..... 5 00

Extra selected, two years old, each..... 10 00
Circular free, giving full particulars regarding
each class of queens. Address

G. M. DOOLITTLE,
7-13 Borodino, Onondaga Co., N. Y.

ALSIKE CLOVER SEED

OF OUR OWN GROWTH, PURE AND CLEAN,

AT 13 CTS. PER POUND, BAG INCLUDED,

in orders of 20 lbs. or more.

Send money orders on Fort Plain, N. Y. Address

WILL C. HALL,
7-8d Hallsville, Mont'g Co., N. Y.

FOR SALE.

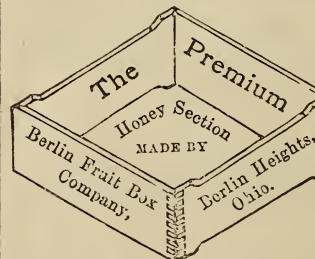
The right to manufacture and sell the STANLEY AUTOMATIC REVERSING HONEY-EXTRACTOR for the States of Wisconsin, Illinois, Kentucky, Tennessee, Mississippi, Alabama, and all States and Territories west of the Mississippi River, except California. Will sell all or part of above-named territory. For prices, address

7-8d J. E. STANLEY, Wichita, Kansas.

SEED POTATOES.

Dakota Red, per peck, 50 cents; bushel, \$1.50. White Star, Clark's No. 1, Jordon's Prolific, Watson's Seedling, and Early Mayflower; pecks of any one variety, 40 cents; bushel, \$1.25. Sacks free. Under ordinary cultivation I grew over 55 bushels of Dakota Red from 49 lbs. seed. Descriptive circular free.

O. H. HYATT,
7d Shenandoah, Iowa.



To all who
wish to use the
best honey-sections,
V-groove,
and which fold
without break-
age, we say, try
ours. Prices
reasonable, and
liberal discount
on large orders.
Send for prices
of both aparian
supplies and
fruit-boxes. Ad-
dress as above.

7-8-9d

EARLY BEES AND QUEENS FOR SALE.

I can ship Colonies, Bees by the pound, and Queens, early in spring. Prices on application. Address
5-7d G. W. BECKHAM, Pleasant Hill, Laze. Co., S. C.

COMB FOUNDATION. Headquarters in CANADA.

Four first premiums in two years. Commencing our fourth year without one complaint. A. I. Root's Simplicity hives and supplies. Circular free.

7d WILL ELLIS, St. Davids, Ont.

FIRST IN THE FIELD!!**The Invertible Bee-Hive**
Invertible Frames,
INVERTIBLE SURPLUS - CASES,
TOP, BOTTOM, AND
ENTRANCE FEEDERS.

Catalogues Free. Address

J. M. SHUCK, DES MOINES, IOWA.
43db**SYRIAN AND ITALIAN QUEENS,**Before June 15, tested, \$2.50 each; after, \$2.00 each.
Untested, before June 15, \$1.00 each; after, single queen, \$1.00; six for \$5.00; twelve for \$9.00.
6tfdb**ISRAEL GOOD, Sparta, Tenn.****Italian Queens sent by Mail.**

Untested queens from imported mother, April, \$1.25; May, June, and July, \$1.00. After April, per half-dozen, \$5.00. E. CRUDGINGTON & SON, Breckinridge, Stephens Co., Texas.

C. W. Phelps & Co's Foundation Factory.
SEE ADVERTISEMENT IN ANOTHER COLUMN.**HONEST at HONEST SEEDS PRICES.**

DIRECT FROM THE GROWER.

Strawberry Tomato, or Ground Cherry, true seed, .10
Cook's Imp'd Popping Corn, best in the world, .10
Cook's Improved Lima Bean, " " " " " .10
Chufas, or Earth Almonds, very hardy, .10
Mammoth Russian Sunflower, best egg-food, .10
Japanese Nest-Egg Gourd, a pretty climber, .10
Chinese Yam, or Cinnamon Vine, 6 bulbs, .10
Purple-Husk Tomato, true seed, .10
Mixed Flower Seeds, over 200 choice varieties, .10
All the above choice seeds sent postpaid for .50
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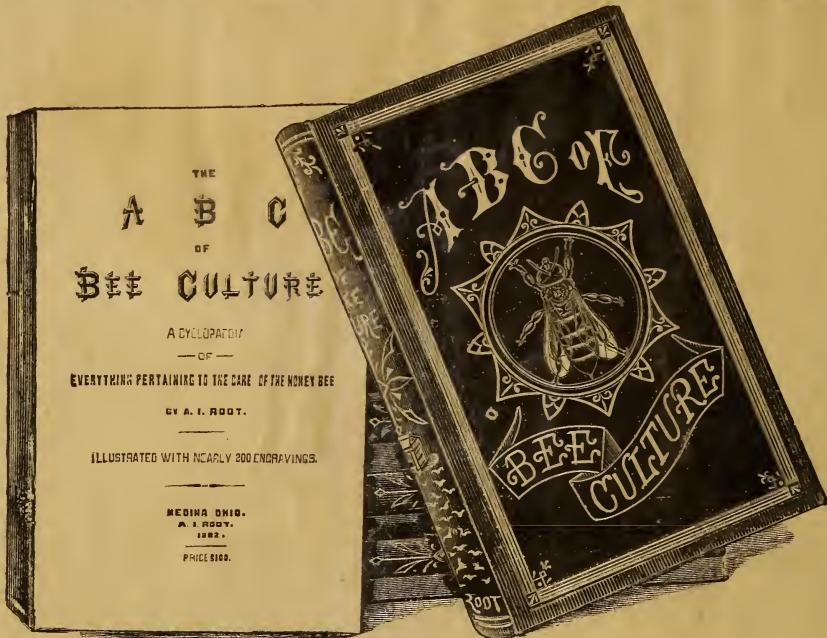
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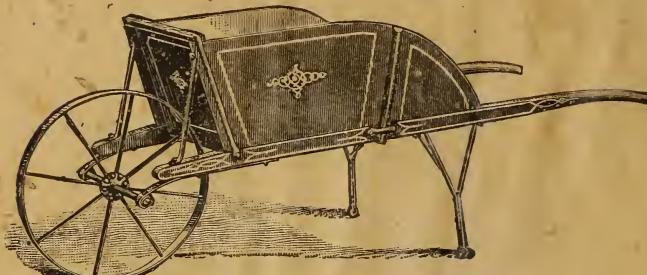
The British Bee Journal is now mailed to our address in packages, semi-monthly. In order to dispose of them, we offer them at present at \$2.62 per year, postage paid, beginning January, 1886. Will guarantee safe arrival of every number.

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ALSO A WHEELBARROW FOR WOMEN, CHILDREN, AND PEOPLE WHO ARE NOT VERY STOUT.

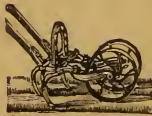


OUR 35-POUND WHEELBARROW, CAPABLE OF CARRYING 500 POUNDS.

them at their convenience, when times were dull. Well, friends, the wheelbarrows are here, and they are a surprise to everybody. We show you a picture above. We have two sizes—the smaller one weighing only 35 lbs., and yet it will carry 500 lbs. safely, and it can be packed so closely together for shipment that you can take the whole thing under your arm and walk off easily. The wheel has flat spokes instead of round. The different pieces are all cut, and forged by means of dies. The legs are steel, so they will neither break nor bend, even if you bump them on the sidewalk. The springs are oil-tempered, with adjustable bearings, so you can tighten them up for wear. More than all, the wheelbarrows are the nicest job of painting and varnishing, I believe, I ever saw, for a farm implement. They are handsome enough to go around town with, and strong enough to do heavy work; and yet the price of the small size is only \$4.00, the same as our iron wheelbarrow. The larger size is \$4.50. The only discount that can be made is 5 per cent off for two; 10 per cent off for five, or 15 per cent off for ten or more. They can be sent either by freight or express. It is only five minutes' work to put one together.

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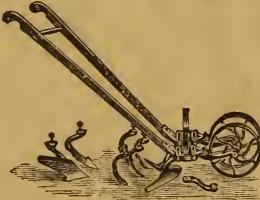
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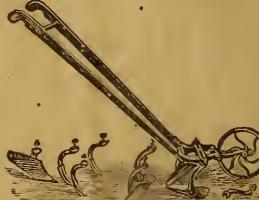
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The “Planet Jr.” Double Wheel Hoe, Cultivator and Plow.



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These are probably the best made, most practical, and most thoroughly tested implements in the market. They range in price from a simple wheel-hoe, price \$3.00, to the most complete wheel-hoes with all kinds of cutters for getting at both sides of the plants at once, of any thing made, as well as the most complete hand seed-drills. We can send a full and complete illustrated catalogue on application. As with many other implements, we have special rates that enable us to furnish them even lower to our customers than you would probably get them of the manufacturers. Send for a catalogue, if you are at all interested in this kind of work. We give illustrations that show some of the uses to which the Planet Jr. may be put. We also furnish the Planet Jr. horse-hoe. These machines are used on our own grounds, and we consider them ahead of any other cultivator in the world.

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GET ACQUAINTED WITH THE BEE-KEEPERS' REVIEW.

The December issue has 24 pages, a cut showing "The Home of the REVIEW," also an accompanying article descriptive of "The REVIEW, its Home, its Editor and his Family." This number shows more clearly, perhaps, the plan upon which the REVIEW is conducted, than does any single number that has preceded it. In its advertising columns will be found the description of a plan whereby all who wish may secure the back numbers at a trifling cost. The special topic of this issue is, "What Will Best Combine With Bee-Keeping? and What Shall Bee-Keepers do Winters?" This number will be gladly sent free to all who apply, and with it will be sent two other numbers.

21-8db **W. Z. HUTCHINSON, Flint, Mich.**

FOR FOLDING PAPER BOXES send to
21-8db **A. O. CRAWFORD, S. Weymouth, Mass.**

Cash for Beeswax!

Will pay 22c per lb. cash, or 25c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 27c per lb., or 32c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT. Medina, Ohio.

Barnes' Foot-Power Machinery.

Read what J. I. PARENT, of CHARLTON, N. Y., says — "We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have double the amount of bee-hives, etc., to make, and we expect to do it all with the Saw. It will do all you say it will." Catalogue and Price List Free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23-td



LEPAGE'S LIQUID GLUE.

Few words of praise are necessary for this excellent article, so widely known and advertised. It is one of the best of liquid glues. Always ready for use. Mends every thing. We have 4 different-sized packages.

Glass bottle like the adjoining cut for 10 cts.; 75 cts. for 10; \$7.00 per 100. Half-gill tin cans with screw cap, and brush fastened to inside of cap, price 15 cts. each; \$1.10 for 10; \$10.50 per 100. This latter can be sent by mail for 10c. extra for postage and packing.

Gill tin can with brush, 20 cts.; 10 for \$1.50; 100 for \$14.00; ½-pint tin cans, no brush, 25 cts.; \$2.20 for 10; \$21.00 per 100.

LePage's MUCILAGE, in large bottles, with a nice enamel-handle brush, at 10 cts. each; 75 cts. for 10; \$7.00 per 100. This is the best mucilage made, and will do nicely in manycases for glue, although it is pretty thin to be used as glue.

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VANDERVORT COMB FOUNDATION MILLS.

Send for samples and reduced price list.
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ENGINES, SIMPLE AND COMPOUND.

We have been having built, specially for bee-hive work, a superior grade of engines. They are heavier, and better built, steel and wrought iron being used in several of its parts where cast iron is ordinarily used on ordinary trade engines. Our prices are as low as can be obtained on engines of an inferior grade. Prices: Simple engines, without boiler, 2½-horse-power, \$75.00; 5-horse-power, \$100; 4-horse-power, \$125; 10-horse-power, \$150. Compound engines, without boiler, 2-horse-power, \$100; 4-horse-power, \$133; 6-horse-power, \$167; 8-horse-power, \$200. The above prices include lubricators, throttle-valves, and governor belt. In our compound engines the steam is used over again in a larger cylinder, thus economizing fuel, and these in small powers you will not be likely to get elsewhere. We have tested these engines thoroughly, and they give us good satisfaction. On engines and boilers combined, write for prices. For further particulars write us.

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TAKE NOTICE!

BEFORE placing your Orders for SUPPLIES, B write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO.,

21-20db **NEW LONDON, Waupaca Co., WIS.**

16-td **In responding to this advertisement mention GLEANINGS.**

SECTIONS! SECTIONS! SECTIONS!

On and after Feb. 1, 1890, we will sell our No. 1 V-groove sections, in lots of 500, as follows: Less than 2000, \$3.50 per 1000; 2000 to 5000, \$3.00 per 1000. Write for special prices on larger quantities. No 2 sections at \$2.00 per 1000. Send for price list on hives, foundation, cases, etc.

J. STAUFFER & SONS,
Successors to B. J. MILLER & CO.,
Nappanee, Ind.

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Carniolan Queens & Bees a Specialty.

The co-partnership of Andrews & Lockhart is now closed, and the senior partner (who has bred those queens and bees for six years) will breed queens and bees from imported mothers, in the season of 1890, and will sell, the 1st of June, untested at \$1.00; one-half dozen at \$5.00; one dozen at \$9.00. The tested, the 15th of June, \$2.00; one-half dozen, 15th of June, \$10.00. All queens above the untested will be put into one class, and sold as tested at \$2.00, of next year's breeding. I expect to have queens of last year's breeding, which I will sell on the 10th of May, tested, \$2.50; one-half dozen, \$12.00. Send for circular.

1-6db **JOHN ANDREWS,**
Pattens Mills, Wash. Co., N. Y.

Bees & Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at \$1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.

THE D. A. JONES CO., BEETON, ONTARIO, CAN.

A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, Ohio.

WINTER PRICES.

We will, until March 1st, 1890, make the usual *DISCOUNTS*, or, in other words, furnish *SAME GOODS* at *SAME PRICES* as are offered by *Gleanings*.

We Manufacture a Full Line of

Bee-Keepers' Supplies,

And shall be pleased to furnish *ESTIMATES* on any quantity of Goods.

Send for large Illustrated Price List, mailed free

THE W. T. FALCONER MFG. CO.,

Mention *GLEANINGS*.

Jamestown, N. Y.

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Wholesale and Retail.

Illustrated catalogue FREE to all. Address 3-11td E. KRETCHMER, COBURG, MONTGOMERY CO., IOWA.

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WE make the best Bee-Hives, Shipping-Crates, Sections, etc., in the world, and sell them the cheapest. We are offering our choicest white one-piece $4\frac{1}{2} \times 4\frac{1}{2}$ sections, in lots of 500, at \$3.50 per 1000.

1-7 Parties wanting more, should write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tdfb

G. B. LEWIS & CO., Watertown, Wis.

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J. C. SAYLES,

HARTFORD, WIS.,

Manufactures Apiarian Supplies of Every Description. Catalogue Free to All.

3tdf Send Your Address.

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Is not a seed catalogue but a magnificent volume containing 270 Elegantly Colored Plates, making the most Beautiful and Extensive Collection of Floral Lithographs ever published. The first copy cost over \$2000.00. I will mail one copy for introduction on receipt of 50 cents.

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BINGHAM PATENT SMOKERS, AND

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ARE WITHOUT QUESTION

THE BEST ON EARTH.

Send for descriptive circular and testimonials.
1tdfb BINGHAM & HETHERINGTON, Abronia, Mich.

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Bee-Keepers and Fruit-Growers, before you order your supplies for 1890, send for my catalogue and price list of *Bee-Keepers' Supplies* and *Strawberry Plants*. Twenty-five approved varieties grown for this season's trade. Prices reasonable. Bees and Queens for sale; \$1.00 queens a specialty. Address F. W. LAMM, 24-23db (Box 106.) SOMERVILLE, Butler Co., Ohio.

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Engines & Boilers.

Complete Outfit, or
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The Best and Most Substantial Engine Made.



Fully guaranteed. Send for circular and price list. Mention this paper.

MEDINA ENGINE CO.,

20tdfb Medina, Ohio.

IMPORTED QUEENS.

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|---|--------|
| In May and June, each, - - - - - | \$2 00 |
| In July and August, each, - - - - - | 1 80 |
| In September and October, each, - - - - - | 1 40 |

Money must be sent in advance. No guarantee on shipments by mail. Queens sent by express (8 at least), which die in transit, will be replaced if returned in a letter.

1-11d CHAS. BIANCONCINI, Bologna, Italy.

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SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND
SAVE FREIGHT.

We carry a complete stock of Apiarian Supplies. Our motto: Good goods and low prices. Illustrated catalogue for your name on a postal card. 23-10db

R. B. LEAHY & CO., Higginsville, Mo.

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Please mention *GLEANINGS*.

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Don't buy your Seeds or Plants till you see my FREE 1890 Catalogue. I offer something Wonderful. Send for it.

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